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- 18 PAGES OF THE STUFF!

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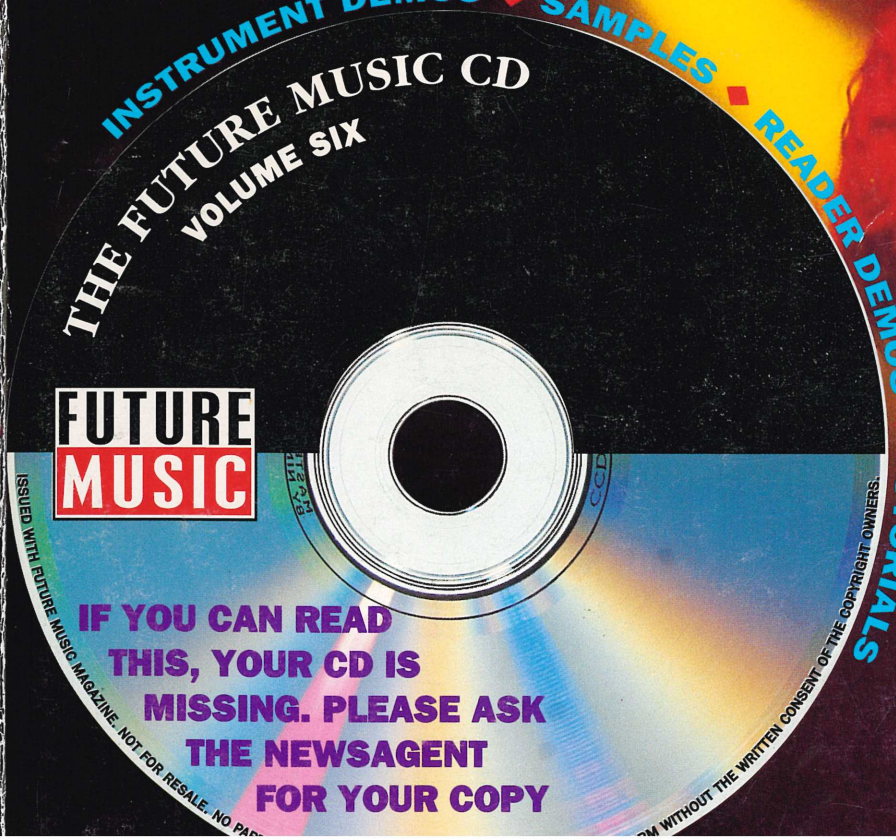

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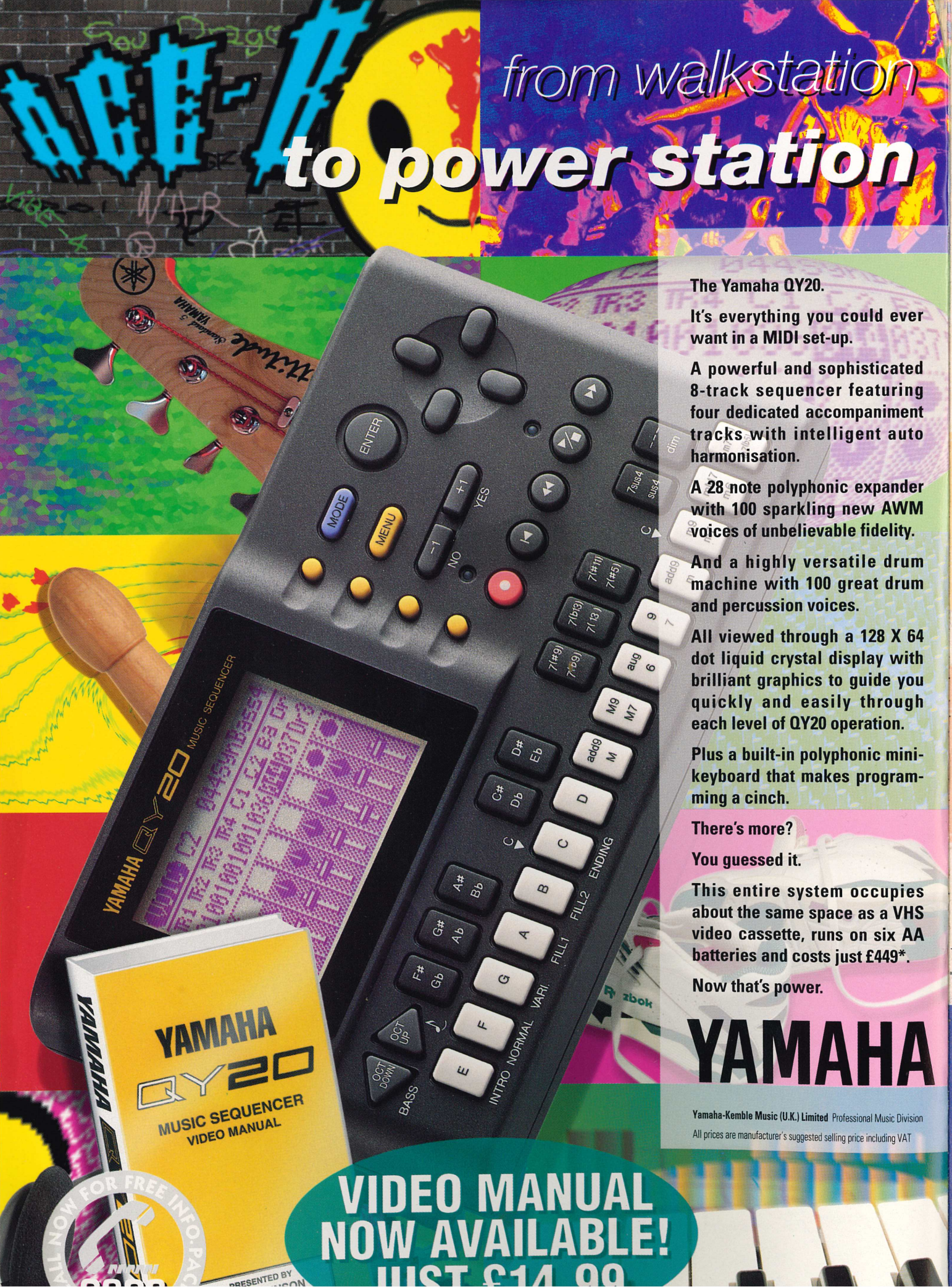
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to power station
The Yamaha QY20.
It's everything you could ever want in a MIDI set-up.
A powerful and sophisticated 8-track sequencer featuring four dedicated accompaniment tracks with intelligent auto harmonisation.
A 28 note polyphonic expander with 100 sparkling new AWM voices of unbelievable fidelity.
And a highly versatile drum machine with 100 great drum and percussion voices.
All viewed through a 128 X 64 dot liquid crystal display with brilliant graphics to guide you quickly and easily through each level of QY20 operation.
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You guessed it.
This entire system occupies about the same space as a VHS video cassette, runs on six AA batteries and costs just £449*.
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The *Future Music* Ratings System

Product name
What it does
£RRP, inc VAT ◆ Distributor's name and address ◆ Telephone number for enquiries

Verdict
Features
Ease of use / Setting up
Quality of results
Value for money

A brief assessment of the product overall, a summary of its best and worst points, and possibly an indication of what to use it for.

FUTURE MUSIC RATING 85%

◆ Every *FM* review is designed to help you understand what to expect from an instrument or program.
◆ We tell you the essentials, without jargon or waffle.
◆ We only review finished products.

At the end of a review is a box like the one to the left. The LEDs show a mark out of ten for each aspect, while the overall rating covers the total worth of the product.
80+% means a particularly excellent bit of kit.
70+% means well worthwhile.
60+% means good, but a few shortcomings.
50+% is acceptable.
A rating below 50% indicates you should think carefully before parting with money.

The *FM* Platinum Award
If something earns a rating of over 89%, it must be pretty good stuff, right? That is why we give it the coveted *Future Music* Platinum Award.

FUTURE MUSIC PLATINUM

DESKTOP MUSIC

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33 Studio Electronics SE-1
It sounds like a Moog, is MIDI controllable, programmable and rack-mountable. But is it the business? We engage in frantic firtling to find out.

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Don't panic! There's hope for us all

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Power compact

Another month, another volume of the *FM* CD. Maff Evans steps up and talks you through the latest collection.

CHRISTMAS MAY have been and gone, but it doesn't mean that we have to stop being generous. This month we've got not one, not two, but three full commercial tracks (with a definite industrial feel) from one top electronic act and two bands from a forthcoming compilation album. Along with this collection we've got three demos, some instrument examples, samples.... Well, why not read on for more information.

Signed act

TRACK 01

Shining – *Hysteria* (Beeston/Bagguley)

Featured as a breaker back in *FM* 10, ex-Nitzer Ebb member Joolz Beeston's new band, Shining, are just about to finish up work on their debut album *Wide Eyed and Frantic*.

◆ Mean, moody, wide-eyed and frantic – Shining.

The duo of Joolz and vocalist John Bagguley has been involved in record production for some time: Joolz recently remixed Cubanate's *Bodyburn* and produced the Xymox album, *Headclouds*, while John has worked with Flood, Peter Gabriel and Simply Red as a technical advisor. You can spot the Ebb influences but I'm sure that any fan of this style of music will acknowledge the new, individual elements that Shining have introduced. If you're interested, the album should be out before the spring, with *My Hollywood* being mooted as a possible single. Keep a look out.

Careers

TRACK 02

Mark 13 – *Cyber Christ* (Mark 13)

Continuing the industrial theme, Mark 13 (which is basically the working name of one person) is a full-on, hardcore, bass-and-distortion out of place blaring from the speakers of somewhere like the Hard Club or Slimelight. This track is due to appear on the *Cyberwerks* compilation CD (released this February), which also includes a host of other techno-industrial bands. Turn to **page 59** for more information on the album and the methods involved in putting it together. Speaking of *Cyberwerks*...

TRACK 03

Ground Zero – *Light* (Denton)

This is another track to be featured on the *Cyberwerks* album, this time from northern band Ground Zero. Formed by Ged Denton after seeing Nitzer Ebb perform on late-night TV back in 1988, Ground Zero merge guitars, two vocalists and heavy beats to create a rocky angle on the industrial genre. Members of the band are also involved in Manchester-based techno group V-Sequence... Just a quick bit of info for trivia fans. After all, this kind of stuff could be useful when they hit the big time.

News

TRACK 04

Atomix – *Erotec* (Power)

Atomix is the nom-de-sequencer of Simon Power, who is known more for his studio work with various bands on the Champion label (erstwhile home of Todd Terry and Sybil). He is now working on remix material for DJ Factory and promoting his own sample CD. *The Bite-Sized Beats 'n' Samples* CD is available as a limited run, so we thought we'd give *FM* readers the chance to hear some of Simon's stuff along with giving space to a few samples. Skip to track 24 to hear the samples for yourself. For those who want to know, *Erotec* was produced in Simon's home studio using a Roland S-330 and MKS-50, a Cheetah MS6 and a new Korg O5R/W.

For more information on joining the DJ Factory project (or information on the sample CDs) then give Simon a ring on the number below.

◆ **Simon Power: 0225 464129**

Reader demos

TRACK 05

Insight – *Morning Light* (Louca/Owen)

Insight (previously known as XTurnal) are a Portsmouth-based soul band who combine electronic music with soulful female and male vocals. The band was formed by Gary Louca as a similar concept to such acts as C+C Music Factory and Soul II Soul – using more than one lead singer over a soul-dance backing. Two of the vocalists are Lisa Barron and Rachael Hawnt, both of whom is written by Gary, although some of the later songs (including *Morning Light*) were co-written by himself and pro-musician Phillip Owen. Although the band has seen many collaborators come and go, the final line-up seems quite solid, with the addition of engineer Simon King to provide a yet more professional edge. For our opinion on some of Insight's material, read the demo reviews starting on **page 98**.

◆ **Gary Louca: 0705 872128**

TRACK 06

Sense of Sight – *The End* (Berg)

Sense of Sight exist around a nucleus of one. Well, actually Sense of Sight is the nucleus of one, that one being Richard Berg. Although he looks like a member of a rock band and cites influences such as Talk Talk, Simple Minds and Van Halen, his music is a lot more slinky and soulful than these bands'. The only obvious Van Halen element is a single rock-like guitar sample on one of his tracks, while nothing in the sound links to Simple Minds or Talk Talk (either in their 80s' electro-pop era or the later ethereal experimentation period).

The End has been picked for the CD because we liked the delicate touch that Richard has applied to the performance and mix (as well as the song writing). It's quite a mournful ballad, but still sounds uplifting. Sorry... Got a bit poetic there. Well, listen to the track and you'll see what I mean.

◆ **Richard Berg: 081 874 9840**

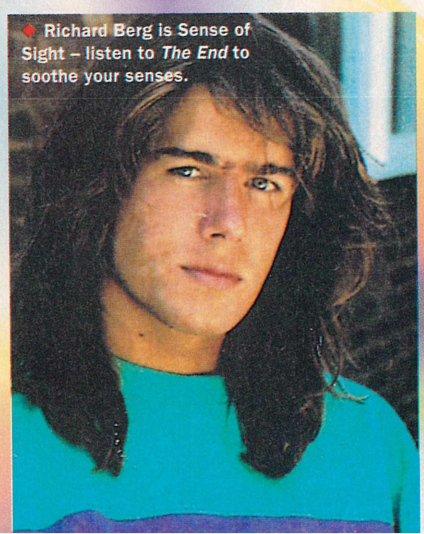
TRACK 07

Barracuda – *Mecca* (dub) (Boddy)

This is the work of one Paul Boddy, who creates a blend of techno-dance and ethnic ambient music (he claims to listen to a wide variety of music, particularly Björk's *Debut*).

Paul got started after being heavily influenced by the early 80s' synth-pop of Vince Clarke (from his Depeche Mode days through to his time with Yazoo). *Mecca* (dub) was produced using a minimum of equipment, basically a combination of second-hand budget gear. As we always say, it just goes to show what can be achieved without the most expensive and up-to-date music gear

◆ **Paul Boddy: 0273 205337**



◆ Richard Berg is Sense of Sight – listen to *The End* to soothe your senses.

TRACK 19

Yamaha EMT10

Heralded by some technology fans as 'one of the best-kept secrets of the industry', the EMT10 is a very slick little sound module featuring pianos, guitars and other well-used instruments. For some reason, the EMT10 escaped true recognition in its day because it was distributed in this country by Yamaha's home-organ dealership. Although not picked up by many people, it performs extremely well (even today). A tiny module with an excellent range of sounds Turn to **page 46** for the run-down on this retro goodie and listen to the sounds on the CD for examples of the following sounds: Piano 1, Piano 2, Harpsichord, Guitar, Strings, Choir, Double Bass.

YOUR CUT-OUT CD CASE BOOKLI

CHRISTMAS MAY have been and gone, but it doesn't mean that we have to stop being generous. This month we've got not one, not two, but three full commercial tracks (with a definite industrial feel) from one top electronic act and two bands from a forthcoming compilation album. Along with this collection we've got three demos, some instrument examples, samples.... Well, why not read on for more information.

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Sound demos and samples

TRACKS 20 AND 21

SY85 Techno & Ambient

As long-time readers of *Future Music* will know, we rather like the Yamaha SY85 workstation. Not only is it a good keyboard by itself, but you can also get new sounds on disk for a very reasonable price. Flip to **page 48** to see how this disk stands up to review treatment and listen to the selection of sounds included on the *FM* CD this month.

◆ Yamaha: 0908 366700

TRACKS 22 AND 23

Real Drum Company demo and samples

The RDC Masterkit is a CD-ROM-based collection of drum kits which have a very human feel, and enable the greatest possible flexibility in setting up electronic kits and drum sequences. All the sounds were recorded digitally from an Akai S3000 direct to a Sony DAT (no effects or compression were used). The loops and demos were played on a Zildjian DrumKAT by Paul Brook and edited on a Mac Classic running *Vision*. The first six loops are exclusive to *FM*, so you won't hear them anywhere else. If you want to hear more, the CD-ROM is available for £199 from Time+Space. Enough advertising – listen to the demo tune, loops and drum hits to hear how realistic they sound.

◆ Time+Space: 0442 870681

Bite-size Beats 'n' Samples

TRACK 24

As mentioned earlier (track 4), Simon Power not only writes and produces music, but also has a sample CD available (albeit in limited numbers in the UK) titled *Bite-size Beats 'n' Samples*. Because he's so generous, he's given us a selection of sounds from the CD for you to use. If you like the samples (or just like the *Atomix* track), give Simon a buzz on the number below. More good news is that we'll be sticking some more of his stuff on next month's CD, so watch this space.

◆ Simon Power: 0225 464129

How to...

Get more from compression

TRACKS 25 AND 30

In the fifth instalment of our ongoing guide to using effects, we look at getting the most from compression. Often an overlooked recording technique, it is a vital part of getting your sound just right. Turn to **page 65** for the full run-down of tutorial sound bytes,as well as a detailed explanation of the examples on the *FM* CD. FM

Got a problem?

The *FM* CD is manufactured in the UK to the highest possible standards. However, it's ever the way that one or two of them will turn out to be faulty. If you have a problem with your CD, try it out on another CD player just to check it's not your own deck playing up. If there's still no joy, pop the CD into an envelope, along with precise details of the fault, and send it to: ***FM* CD Returns, Future Publishing, FREEPOST, Somerton, Somerset TA11 7BR** (No stamp required.)

FLY HIGH

S2 Turbo

S2 Turbo Music Processor
is an advanced synthesizer with an endless series of new sounds,
a sophisticated keyboard - based recording studio,
a complete MIDI master keyboard controller.

- Polyphony - 32 notes max
- Polyphonic Aftertouch • 16 Parts, 16 Splits, 16 Layers • 500 ROM Sounds + 1.500 programmable Sounds
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- 2 MIDI In, 2 MIDI Out, 2 MIDI Thru • Static Memory Expansion (512 KBytes)

S2 Turbo Music Processor is available in a 76 - key version (S3Turbo) and in the rack version (S2R Music Processor)

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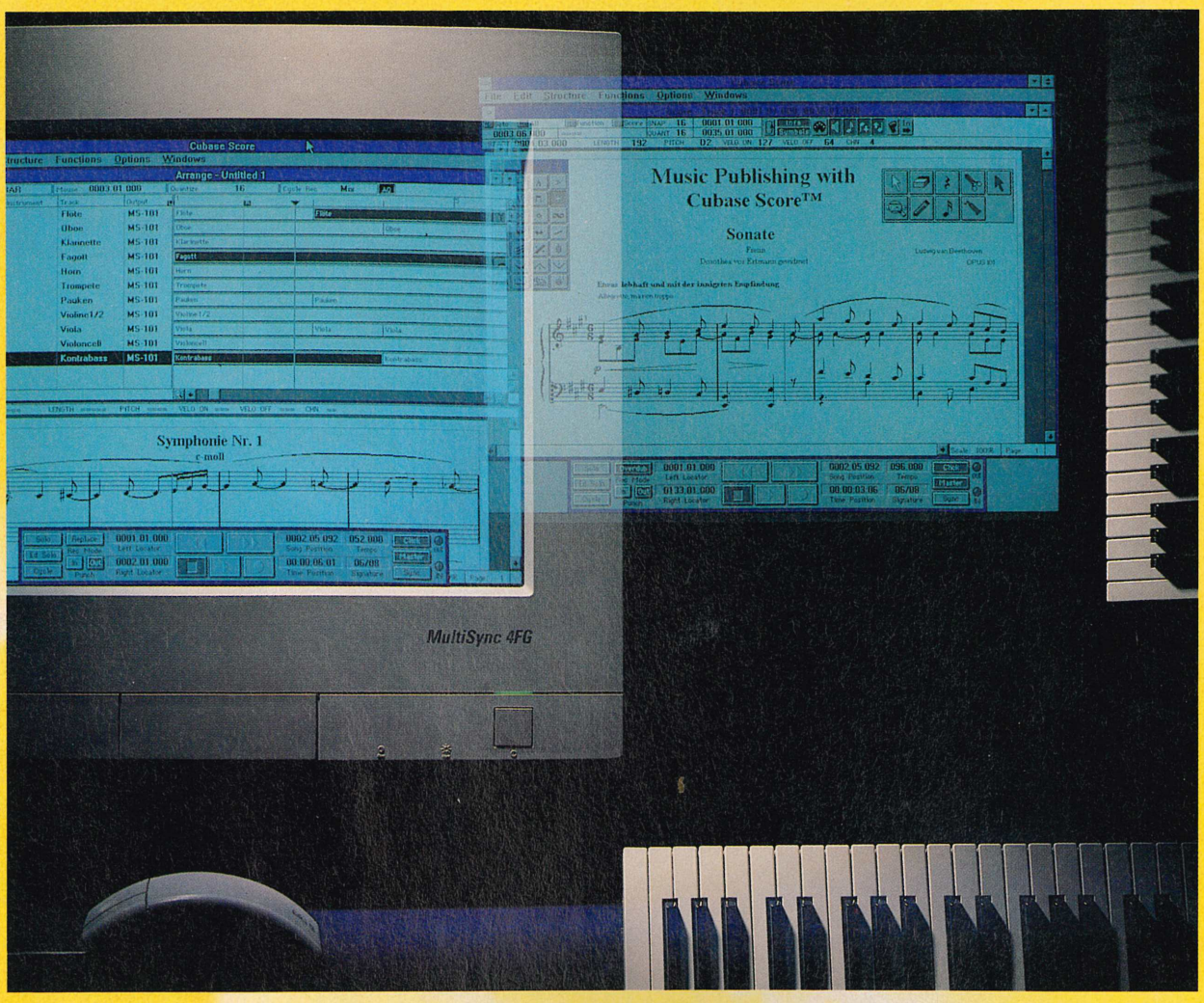

Cubase Score for Windows combines first class MIDI recording with Professional Score Printing - all performed with a transparency and user friendliness never before seen on an IBM-PC.

Features alone don't make a good program - the integration into the user interface is vital, and Cubase Score's interface *is* leading edge technology.

Cubase Score includes both PostScript support and a dedicated notation-font for high quality printing. Add to this, true ease of use, and with Cubase you get maximum flexibility ... with minimum fuss!

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* Cubase Lite, Cubase, Cubase Score or Cubase Audio
** e.g. to remote control an Alesis ADAT. Steinberg ACI hardware required

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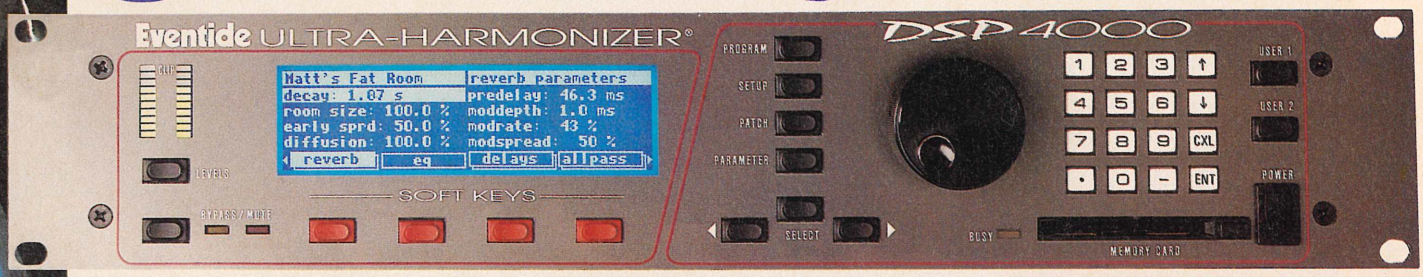
Top-end effector's grand entry

Eventide's latest effects processor arrives in the UK – but at a price.



◆ **The DSP4000 finally reaches the UK, but it costs more than four-and-a-half grand. Bah!**

THE EAGERLY AWAITED Eventide DSP4000 effects processor is here. Distributor HHB has taken delivery of this top-notch gizmo, which has not only been praised for its almost unrivalled sound quality (the reverbs rival the quality of dedicated units), but the editing system has won it a lot of friends too.

Story by Maff Evans

The system is presented in a modular fashion, with 'building-blocks' being used to move program data around within memory and a large LCD screen presenting things in a friendly fashion. Inputs can be fed into the DSP4000 via analogue XLRs (with 18-bit digital-to-analogue conversion) or 24-bit digital AES/EBU and S/PDIF inputs for maximum quality. Add to this the fact that you can run multiple programs at the same time (enabling you to create incredible cross-fade effects) and a removable memory card for transferring programs between different units, and it looks like a stonking machine.

Rob Buckler (of London's renowned Strongroom recording studio) agrees: "We bought the DSP4000 primarily for the classic Eventide effects, but have since found that its reverb qualities rival – and in many cases surpass – those of our dedicated high-end reverb units. Great effects, amazing reverbs, masses of processing power and it's easy to use – the DSP4000 has it all!" Hmm. Could it be that he's got shares in the company or something?

All this hyperbole may have got you a bit excited, but calm down. HHB is asking the princely sum of £4,695 for this mighty beast. A bit out of most of our spending ranges, I think. Ah well, back to the cheaper multi-effects units...

◆ **HHB: 081 960 2144**

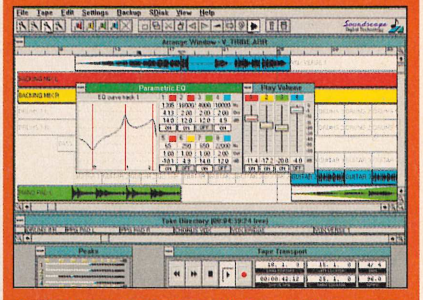
Soundscape upgrade

Soundscape Digital Technology has just released a software upgrade for its hard-disk recording system, featuring eight real-time parametric equalisers which can be split across several tracks, or applied to just one.

Also included is a new fader window for track volumes, with mute and solo functions and support for multiple Soundscape units.

The software has been issued to existing registered users, as will all software upgrades in the future bar those involving digital effects such as reverb, delay and time-stretch.

Soundscape can be contacted on 0222 811512, and not on the number we printed in the *FM* 13 review. Oops!



◆ **The Soundscape hard-disk recording system takes to the software-upgrade trail with new parametric equalisation features.**

S-760 support

Roland's much-talked-about slimline sampler, the S-760, should be in the shops by the time you read this (see page 25 for our review) and the buzz throughout the industry has been so loud that Roland has decided to start marketing sound support immediately.

Ten CD-ROMs have been developed by Roland's Japan HQ, including such titles as *World Music* and *Keyboards of the 70s and 80s* volumes one and two. The synths were sourced from systems only available to Roland Japan, with all sounds being sampled at a staggering 88.2kHz (gosh). The sample rate was then digitally converted to 44.1 kHz to enable playback on the S-760 while keeping the maximum clarity.

Each CD-ROM will cost £110, with 150Mb of sample data on each volume. According to Roland, with the price of CD-ROM drives coming down: "This new Roland professional sample library could not have arrived at a more opportune moment." Well, we'll see.

◆ **Roland: 0252 816181**

Triple whammy from Sound Technology

Leading UK high-tech distributor Sound Technology has lined up three treats for Alesis, Mark of the Unicorn and Ensoniq buffs.

First into the fray we've the new Alesis Monitor One near-field studio reference monitors, featuring the SuperPort vent to enhance low-frequency response. With a power-handling capacity of 120W continuous program (200W peak) each, a pair of Monitor Ones are priced at a reasonable £399.

Meanwhile, MotU has bunged two new MIDI interfaces for PC in Sound Tech's direction. There's the MIDI Express PC in a handy 19-inch rack-mount format, which features six MIDI Ins and Outs, as well as a SMPTE generator/reader. All six MIDI Ins can be merged and the Outs can be addressed by such sequencing software as *Cubase* and *Cakewalk Pro for Windows*.

Also, we've the MIDI Express PC Notebook which, as the name implies, is designed to hook up to portable PCs. It has all the same features as the desktop version, less two MIDI Ins.

Both units are supplied with *Console*, a Windows software utility which provides a graphic means of configuring MIDI connections and SMPTE settings. Both are priced at £379.

Finally, owners of Ensoniq's TS-10 keyboard can upgrade the operating system to version 2.0 for two extra features.

One of the sequencers 24 tracks can now be defined as a tempo track for recording continuous tempo changes, while the new SoundFinder enables you to search for sounds by musical category. This also makes managing sampled sounds simpler because they can be loaded as part of a bank. The upgrade makes the TS-10 ready for the SP-4 SCSI (small computer systems interface) to be installed.

All new TS-10s and 12s are being shipped with the upgrade on board, while existing owners can get the upgrade free by contacting their local Ensoniq dealers.

◆ **Sound Technology: 0462 480000**

Play with SPIRIT

Spirit Folio mixers free you to play your music. With more inputs, more auxiliaries, powerful EQ and unrivalled audio quality, you're not held back by the limits of ordinary mixers.

FOLIO

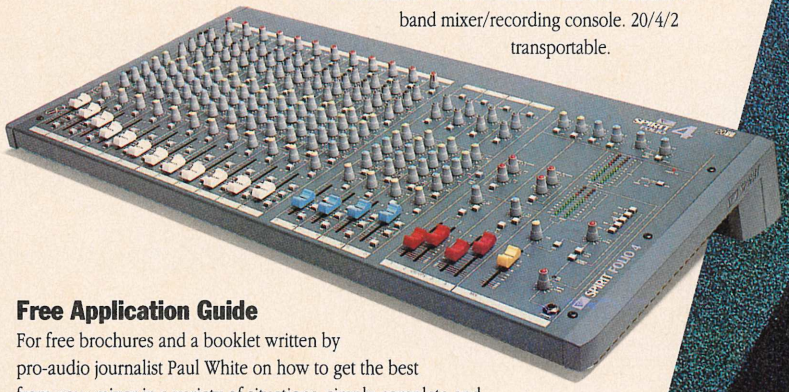
The original personal portable mixer for live or recording: DAT quality sound, weighing less than 5kg and filled with professional features. 10/2 portable, 12/2 portable and 12/2 8U rackmount versions.

FOLIO Si

For keyboards – or any stereo source – Folio *Si* packs 18 inputs, powerful EQ and virtually noiseless operation into a very compact mixing frame. 18/2 table-top and 7U rackmount versions.

FOLIO 4

The power of a 4-bus group section, 20 inputs and no less than 8 auxiliaries make this the definitive band mixer/recording console. 20/4/2 transportable.



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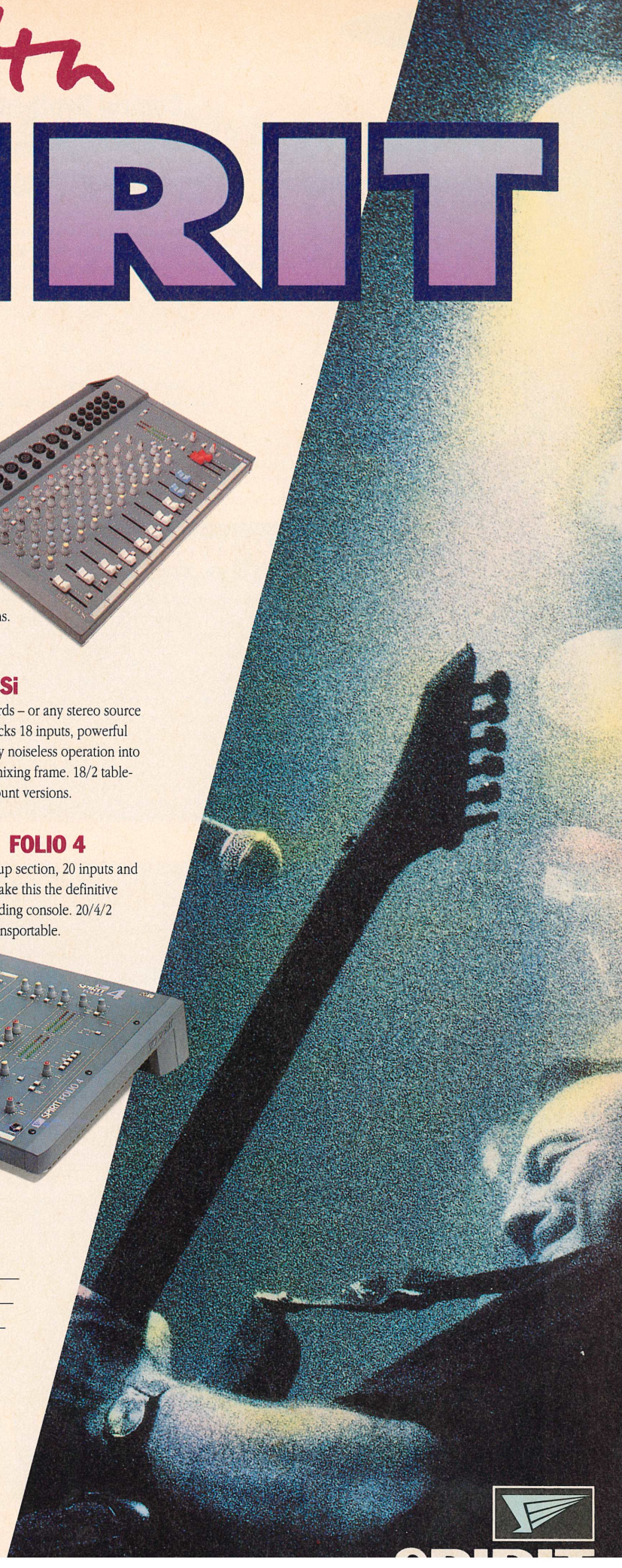

Analogue revolution arrives

Control Synthesis kicks off retro re-issues with MIDI-fied TB-303-a-like.

Story by Maff Evans

NO SOONER DO we announce the launch of Novation's Bass Station analogue keyboard and get a review of the new Studio Electronics SE-1 analogue rackmount in this very issue, but we find that there are even more analogue systems due for release, including a version of Roland's classic acid box, the TB-303 Bass Line from Control Synthesis (a division of retro-kit dealer Music Control).

The £449 Deep Bass Nine is a 19-inch rackmount unit which features all the controls you'd find on the original 303, including tuning, cut-off frequency, resonance, envelope modulation, decay and accent. But perhaps the main feature of the machine is that many of these functions can be controlled via MIDI, as well as new functions such as slide. At last! That classic 303 sound which still sounds right when accessed by MIDI.

At the time of writing, Deep Bass Nine is still being finished, so we can't actually show you one yet. Units should be available any time, though, so we'll be reviewing one very shortly.

Control Synthesis has been set up especially to create products such as Deep Bass Nine, bringing old, analogue gear into the age of MIDI. "We had a lot of enquiries for old analogue Bass Line synths," explains John Young, head of Music Control. "Especially things like the Roland and Sequential stuff. So we basically decided to do it ourselves to meet the demand."

As you may have gathered from the tech specs of this latest piece of kit, Control Synthesis isn't just selling old gear (Music Control is one of the leading dealers of all that stuff already). Instead, brand-new versions of classic analogue equipment will be released.

"We will update the stuff, obviously," continues John. "We'll fit it with MIDI and make it as user friendly as possible, but keep the old analogue-y feel that's the important thing in the first place."

John promises that there will be more products in the line (plans for three units this year are on the cards), but, not surprisingly, he's keeping rather tight-lipped on what they are.

"There will be press releases as the time comes," he promises.

◆ **Music Control: 0270 883779**

Show on, show up, show off

The MIDI, Electronic Music and Recording Show '94 takes place at the Wembley Conference Centre this April and promises to be the key music show of the year for the public. Make a note of the show dates – 22-24 April.

Sponsored by the free music paper, *Making Music*, and heralded as 'the key music-tech forum on the calendar', the show promises to showcase 'the most comprehensive range of equipment available for anyone interested in making music – either professionally or in the home'.

As well as presenting all the latest in MIDI and recording technology, there will also be forums, clinics and 'information centres' to enable musicians, engineers and enthusiasts to gather information, air opinions and have their queries answered by respected professionals in the electronic-music and recording market. So if you've a burning issue to address, get along there and make the specialists squirm.

The show is open between 11am and 6pm on Friday 22, 10am and 6pm on Saturday 23 and 10am and 5pm on Sunday 24 April.

Tickets are £5 in advance (or £8 on the door) and all seminars are free of charge. For more information, call Westminster Exhibitions.

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DIN in

Ex-TSC Studio expert John Bagguley recently announced the launch of DIN Communications, a company specialising in the supply of vogue studio equipment to musicians with the readies. Based at London's popular Marcus Studios, DIN can source second-hand Moogs, Oberheims, EMS synths, Eventides and Lexicons, to name but a few.

"We can demonstrate the gear in professional SSL studios and we can be contacted 24 hours a day," says John. The company provides a fully licensed bar, so you can be plied with drinks as you strike the deal of the decade. Call DIN Communications on 071 385 3366 (fax: 071 381 2680) and get your beers in now.

Power to the people

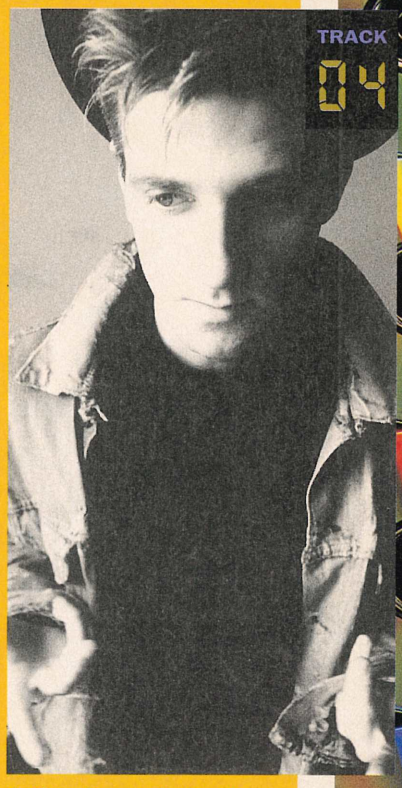
Sample-fiends look out – Simon Power, remixer and musician extraordinaire, has just released the *Bite-Sized Beats 'n Samples* CD in Australia and it's destined for UK shores forthwithly.

You can hear excerpts from it on this month's, and next month's, *FM* CD. There will be around 50 copies available to buy in this country early this year, at a very welcome price of between £25 and £30.

Simon, who records under the names Atomix, Marine Boy and Spongehead, has clocked up some recording successes on the Champion label (Todd Terry and Sybil have recorded on that too), and is currently banging off remixes for the exclusive DJ Mastermix service.

His recent triumphs have included a Max Bygraves mix which he can only describe as "surreal". Simon has recorded *Erotec* especially for the *FM* CD.

For more info about the forthcoming CD, or about the DJ service, get in touch on 0225 464129.



◆ Simon Power, aka Atomix, aka Marine Boy, aka Spongehead. Pic by Nigel Adams.

Taxed teachers alert!

MIDI-dazed schoolmistresses ahoy! Equipment-starved schools attention! There's a newly formed Essex-based organisation that can relieve you of all the technical worry that the National Curriculum for music presents.

Graphic Sound has all the knowledge and equipment to provide schools with hands-on experience of computer music and sound technology. "Teachers are expected to attend a two-day course which is supposed to teach them everything about MIDI and music," says Martin Bennett, Graphic's sound and studio advisor. "This is hopelessly inadequate. We can supply the additional technical expertise they are bound to need."

The organisation is associated with the National Sound Technology Training Centre charity, patrons of which include Phil Collins and Paddy Ashdown.

There's even a teachers' helpline especially for perplexed pedagogues: call Martin or Adrian at Graphic Sound on 0206 844000 if your school (theatre, club, or whatever) needs a helping hand with anything from plugging in a MIDI lead to recording a full-scale production.

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BOSS

◆ Keith Emerson, Greg Lake and Carl Palmer twig to the unwelcome presence of a restaurant security camera.

Welcome back

ELP's 25-year musical heritage meets new Dolby Surround technology.

by Mark Roland

THEY PUT THE POMP into circumstance, and into pompous for that matter. Their impossibly complex output defied the mere word 'record'; their releases were extravaganzas – triple LPs of enormous conceit and concept that plundered classical composers like Aaron Copeland and Mussorgsky. They'd get a side each to fully express their inspiration and burgeoning talent. Only Yes could ever hope to out-prog ELP. The image of Keith Emerson, resplendent in a sequinned catsuit and footballer's haircut (circa Charlie George), jabbing knives into his suffering Hammond B3 and kicking it to pieces is as memorable as that Minimoog solo sound of which he was so fond; the squidgy, sine-wave tootle. Heady days.

It's only appropriate, then, that after 25 years in the rock gallery of enduring stars they should celebrate with a quadruple CD box set called *The Return Of The Manticore* and the re-release of their entire back catalogue. Not to mention a timely re-recording of *I Believe In Father Christmas* with a full gospel choir. That's not all that's been reworked. The newly rejuvenated ELP have been at their own individual and collective musical histories with a relish, the results of which are fresh renderings of King Crimson's awesome *21st Century Schizoid Man,* Arthur Brown's bonkers *Fire* and the presentation of *Pictures At An Exhibition* in breathy, digital glory thanks to Dolby's new Surround technology.

At a hotel in Chelsea, Greg Lake and Carl Palmer explain how it all came about (Keith Emerson is doing the rounds in Japan, where he is something of a cult figure among synthesizer afficionados).

"We were asked to do a soundtrack for a film by a friend of ours," remembers Greg Lake, "and after a couple of months working on it, we realised we had the makings of a full LP." This was in 1990. The LP *Black Moon* was released in 1992 and ELP went back on the road after an absence of 17 years. "We had worked together in the meantime, though." says Carl Palmer. "Greg had some solo LPs and we were both in Asia. Keith worked on film music and played with Cozy Powell and Greg. There was a whole group of things going on." On the enormous tour that followed *Black Moon* (140 dates, fact fans), a live LP was recorded at the Albert Hall and ELP's relationship with Dolby was forged when the Los Angeles date was broadcast in Surround. "We intended to record a new LP in Surround Sound, but it occurred to us that it would be a lovely idea to do a studio version of *Pictures.* It was something we'd never done before and the piece lends itself to this technology." says Greg.

Surround is a system developed for cinema which needs stereo speakers out front and two mono speakers behind. In development now is Dolby's new Surround system, called Discreet 5.1, which is more sophisticated. Using stereo front and back, with all four speakers independently controlled, it also chucks in an independent sub-bass speaker and a dialogue or vocal speaker.

"*Pictures At An Exhibition* works really well in this format," Greg continues "As the music becomes more dramatic, so the Surround Sound starts to generate and you get this feeling of it encompassing you. It's quite a subtle effect, really."

It looks like ELP are going to be around for a while yet. "We're into our next album." says Carl. "We're looking to release it sometime in May to go on tour in July." It seems the show will never end. FM

Re-mastering your back catalogue – the truth

"Don't they stick the tapes in the oven or something like that?" asks Carl Palmer.

Greg knows better. "They freeze 'em. And you get one go at it. As the tape passes over the heads it crumbles – the oxide comes off. The freezing process makes it stand up that much more. So whatever's on there plays great, but that's it. If anything goes wrong... If you miss it, or there's a bad connection, it's goodbye."

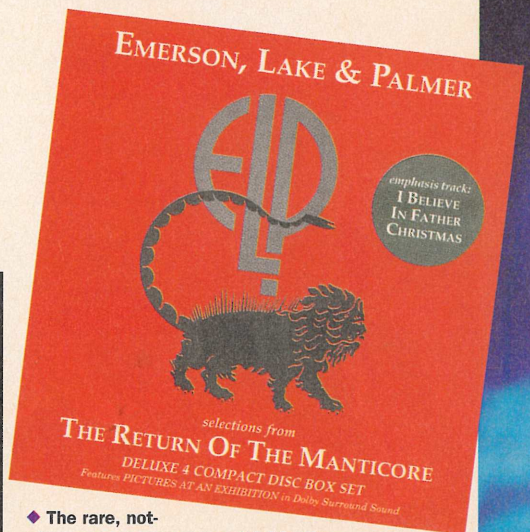
"It's worth doing." says Carl. "With CD you might as well give the music another shot. It impresses us when we play it back." Greg agrees: "What we're hearing now is better than what we heard then. The bottom end's all there, the high frequencies are brought out with the equalisers they use. It sounds great."

Pictures At An Exhibition – the truth

The radical re-working of Mussorgsky's classic was a live workout that showcased ELP's excesses. For many people it remains the band's definitive release, but it nearly didn't come out at all. Greg explains.

"We did the piece because we liked it, we never intended making a record of it. We decided to record it anyway because it was very popular live. We took it to the head of Atlantic Records and he said 'You can't release that. It'll never sell'. In the end he agreed to put it put on a label they owned called Nonesuch, which was the avant-garde, off-the-wall label. We weren't happy with it, but in England we were on Island Records and they started shipping it over. They did about 200,000 in a week. Atlantic freaked and the next week it was out on Atlantic!"

It was also the first album ever to be played in its entirety on radio. And it still sells by the truckload after all these years.



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SOUND CONTROL

◆ The Other Two – Stephen Morris and Gillian Gilbert – brace for some tough, yet polite, interrogation.

Made two order

Once upon a time, New Order was the group that made technology-inspired music popular. Now, it's a collection of individuals and bands: Electronic, Revenge, and... er... the other two. Mark Roland meets The Other Two.

ARGUABLY ONE OF Britain's most important bands, New Order were responsible not only for dragging many a gloomy indie kid into the world of dance, but also for spawning not one, not two, but three (count 'em, missus) spin-off projects.

Not content with straddling the twin peaks of hip and cred for the best part of a couple of decades – first with the gloriously dark and ultimately tragic Joy Division, then with New Order – each band member found time to squeeze in some extra-curricular activity, fuelling speculation that New Order were splitting up.

And then there were two

First to wander was Peter Hook with his band Revenge, then Barney Summers with the sublime Electronic and, most recently, the other two, calling themselves... erm... 'The Other Two', who suddenly popped up with a single by the name of *Tasty Fish*. It's a zesty pop blast that owes a great deal (unsurprisingly) to New Order and which, at the time, was a promise of things to come.

Now, a full two years later, the promise has been fulfilled with the release of Gillian Gilbert and Stephen Morris' debut album, *The Other Two And You*. Sitting in a home-studio set-up that would make many professional 24-track studios look like my spare room, at their farm just outside Macclesfield, Stephen and Gillian reminisce about their long relationship with technology.

"We started using it as fast as it was invented, really – before MIDI, even!" remembers Stephen. "As New Order, the first thing we had was a home-made Transcendent 2000 and a Transcendent sequencer on which we managed to triple the memory by piggy-backing some RAM. That was 1979, before MIDI was invented. The first drum machine we had was a Boss Dr Rhythm. It was all plugging little mini jacks into little mini jacks. It was all CV and gate."

◆ Quite a little rack collection: Quadraverb, Lexicon, Sycologic and much more besides. Very desirable.

Gillian joins in the reminiscences: "When we started taking all the gear out live, we would have to test it on stage before we played. That was my job. It was a bit weird, but it was the only way you could check that it was working."

"By playing the set before we came on!" laughs Stephen.

Synthesizer technology had always fascinated Stephen, and it was an LP by electro-

"What got me interested was the cover of *Tago Mago* which is a photo of the drummer Jaki Liebezeit. He's got these things that look like radiators all round him. A mate of mine, ever eager to bullshit, told me they were drum synthesizers. The concept of it appealed to me and I thought 'I've got to get one of those'. I had no idea what they were, I just thought they'd make you sound like Jaki Liebezeit.

"When I eventually got a drum synthesizer and it made that 'boo boo' noise, you can imagine my disappointment. I decided to make it do something else. With Joy Division, there's a sound that's on *Atrocity Exhibition* that sounds like feedback guitar with a pig being slaughtered in the background – that's this tiny little drum synthesizer put through a fuzz pedal."

When the first digital drum machines started to appear, like the Linn, life got easier; but only gradually. "We also got an Oberheim DMX [drum machine] and the Prophet V [synthesizer] with its poly-sequencing," explains Stephen. "It had a

BBC approved

A fateful and playful live performance of *Blue Monday* on *Top Of The Pops* back in 1983 (yes, *live* on *TOTP!*) had New Order sounding a tad, well, shambolic. Fans country-wide, however, applauded their stance.

"That was a big mistake," says Stephen. "It was a complete struggle. The crew came round and took every plug to pieces to make sure it was wired up right and stuck 'BBC approved' on it. There was one time we were on with U2 and Bono said, 'I really wanted to do it live, but I've got a bad throat'. Ha ha ha."

that way. Another fun thing was that all the stuff on that was stored on micro cassettes, not the same ones as Dictaphones use, but these very special ones that I don't think you can get any more. The drum machine was brilliant because it was the first thing you could program in real time. You actually played a rhythm into it rather than stepping through.

"The poly sequencer was like Morse code programming. It was in 32 clock steps, so you had to count through every click. If you made a mistake there was no way you could just go back a few steps, you'd have to go all the way back to the beginning."

"We'd have a huge sheet of paper and every little tick on it was a clock step," says Gillian. "But when we loaded tapes and the data wasn't there, we just wouldn't believe it." We all know the full horror of losing acres of carefully put-together data in the blinking of an electronic metronome. Thankfully this is a rare occurrence now, but back then enormous memory crashes were commonplace, even the norm.

Take two

"Playing live was a big problem," Stephen recalls. "The reason we wrote it all out in the studio was because the memory, particularly in the drum machine, was so volatile. You'd turn it on, and more often than not you'd just get rubbish out of it.

"Our solution to this was to buy two or three of everything. In the case of the Prophets, we ended up at one particular gig with five and we could only get one of those to work. It was always a nail-biting experience."

Did the group ever have the situation where you were actually programming during soundchecks?

"One time I was doing that in the middle of a gig," laughs Stephen. "It was in Chicago. The room was so hot that the memory just dumped itself spontaneously. It was literally a case of reprogramming the unit as the song was playing. And I was playing drums, too."

> *"It was in Chicago. The room was so hot that the memory just dumped itself"*

Gillian chips in: "The Prophets were already unreliable, so when the sequencers started getting that way as well, everything got wiped. The Prophet was wonky and playing out of tune and the sequencer wouldn't play back anything at all.

"You have to remember that this was all on tape. It was Sinclair ZX81 time, you had to back up on to cassette. With the DMX, the only cassette player you could use was a Marantz Superscope – the world's hardest-to-find cassette player. It was only available in America."

Despite an almost constant battle to get everything working properly, New Order were never tempted to chuck it all in and play rock music.

"We'd started something and we wanted to finish it," says Stephen. "A large part of *Power, Corruption and Lies* had already been written with this gear and there was no other way to do it.

"It was only when MIDI was invented that things became more reliable – we

◆ **This, believe it or not, is the smallest of the three rooms in the studio, which was converted from an old barn. It's got a comfy sofa for chilling out on and a Roland JD-800 for messing about with.**

the Yamaha QX1, which was advertised two years before it came out. We knew it was going to do everything we wanted. The only other option we really considered was to get a Fairlight."

Ah yes, the famous sampling wonder-machine, developed in Australia and responsible for door-slamming snare sounds on Kate Bush LPs and blown milk bottles on Peter Gabriel's. The Fairlight could do nearly everything the Akai S900 can do, for, ooh, about 27 times the cost. As Gillian points out: "One of them would have cost the same amount as all our houses put together. It just didn't justify the price – just to do something you'd written on cheap equipment."

Always keen to try something new, and not disheartened, New Order started using computers.

"There were two abortive experiments with a Mac and the *Mountain Music System*," remembers Stephen. "We took it to a rehearsal hoping we could write something with it. You had a light pen and drew notes on it, but all it could do was play the *Moonlight Sonata*. After that someone did an add-on keyboard which was supposed to turn it into a poor man's Fairlight.

"We spent ages and ages trying to make it match the sounds on a Moog Source by using waveforms. Everything it did sounded like a Hammond Organ. I remember, we'd been trying to get this thing to work all day, it was getting really late and suddenly we got really excited because it was starting to sound right. Then we realised that all the inputs on the amp were turned up full and all we were listening to was distortion. We turned it back to normal and it was shite."

A shopping expedition to correct the situation bore no fruit. "We were going to get a Fairlight, a Synclavier or a PPG. We took the SCI Pro One down there and said 'Make it sound like this, take that reverb

They abandoned computers for a while and relied instead on QX1s and a TX rack with an American 8-voice analogue synth called a Poly Extra.

"The Poly Extra had a cassette dump," says Gillian. "The QXs were pretty reliable. The only thing that ever went on them was the drive.

"The nail-biting thing with the Poly Extra was that when you verified the programs it counted through them. It would always decide to crash when it got to 97, so you'd have to do it all again. But we started using computers fully fledged around the time of *True Faith*."

Totally hooked

Glowing away quietly in the corner I can't help but notice an Apple Mac Quadra 950 with a screen the size of a football pitch. It's an awesome beast with an almost frightening amount of memory stuffed into it, but still a relatively rare sight, with most studios plumping for the vastly inferior (and almost supernaturally cheaper) Atari.

"A friend of ours in America was using Macs with a program called *Total Music*, which we got. Then when we went into ▶▶

Blue Monday

What equipment was used to put together New Order's mega-selling release of 1983, *Blue Monday*?

Stephen: "That was a Moog Source and a bit of Prophet."
Gillian: "We tried to update it when we did the '88 version but the new equipment couldn't improve on it."
Stephen: "I think a lot of it was down to the nice little accidents, like the knob-twiddling and Gillian starting the sequencer off in the wrong place. None of those things really happen any more. Like when you're editing a synth now, you've got to know exactly what you want and how to do it. If you want to make it wobble a bit more you've got to know which parameters to tweak."
Gillian: "You never knew why things wobbled then, but now you've got to find out why and go into it more."

Later *Blue Monday* earned them $200,000 when they re-wrote it for an American Sunkist commercial...

Discography

Joy Division

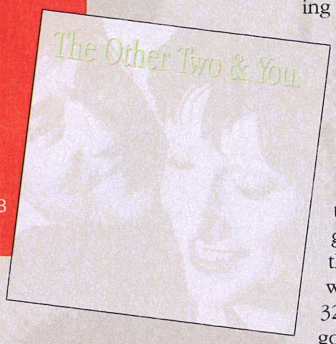
Title	Label	Date
Unknown Pleasures	Factory	July 1979
Closer	Factory	March 1980
Still	Factory	November 1981

New Order

Title	Label	Date
Movement	Factory	November 1981
Power, Corruption & Lies	Factory	March 1983
Lowlife	Factory	June 1985
Brotherhood	Factory	October 1986
Technique	Factory	January 1989
Republic	London	April 1993

The Other Two

Title	Label	Date
The Other Two And You	London	November 1993



the studio, Stephen Hague was using one too. And that was it for us, really."

They've crunched through quite a bit of software in their time, too.

"We've got through most of them," claims Stephen. "We started with *Total Music*, then *Notator* and *Performer*, but that clutters the screen up.

"For a long time we used *Master Tracks Pro*, right up to the time we did *Technique*. It was only when we updated that it started falling apart, jamming, and sticking odd notes in. Now we use *Cubase Audio*."

Have they managed to get through a lot of versions of the many-times-modified *Cubase*? "No," claims Steve. "Version 1 for the Mac was version 5 or something for the Atari, so we've been spared quite a lot of grief there. Before System 7 on the Mac came along we used *Sound Tools* quite a lot, but running it with the sequencer didn't work. So we drafted in an Atari running *Notator* but discovered that *Cubase Audio* does all that in one program."

What samplers do you use?

Steve: "We started with the Emulator Is, – the IIs and the Emulator III are still in there. The only way you could get those things working half the time was by whacking them with an iron bar. They were really expensive and very unreliable. We'd pick one up in two halves and drop it on the floor and it would come to life. But then we got Akai S900s when they came out and we've just got the 3200, which is very good. They've got filters on them which seem to be a tribute to analogue. You couldn't sample anything low like bass drums on the S900 – you always got that click. The 1000s were fair enough and the 3200 is like a brighter 1000, but there's a little dip on the high-mid area. It's not too bad and I haven't really used it a lot, but it was noticed when we loaded samples in that were done on the S1000s."

Their studio sprawls over three rooms, one containing the studio itself (with New Order gold discs propped against a back wall), one with a drum kit lurking in a corner and dotted with keyboards, and another, smaller room with a comfy sofa for chilling out in. It's a magnificent barn conversion (though lacking in central heating – Calor-gas fires do their best in that department). Do they do all their recording here?

Gillian: "With The Other Two stuff we tried writing, engineering and mixing, and even though the results weren't that bad it got a bit silly. We thought we'd try to do everything dead cheap. But it wasn't possible. It's nice demoing here and then going somewhere serious to finish it off."

"The trouble here," continues Stephen, "is that because it's costing you nothing you carry on and on. If you go somewhere that's costing a mint you get more disciplined."

Old habits die hard and, like New Order before them, The Other Two went to Peter Gabriel's Real World studio just outside Bath to finish off the LP. At £1,450 a day, I reckon I could find enough discipline to record an LP in about forty minutes. I didn't write *Blue Monday* though, did I?

"It's all right here for soundtracks," Gillian says. "The quality is still good, but it's not the same as doing a record. We haven't properly worked out the power. I quite like the limits that puts on us. If it was a proper studio we'd have to sort out many more things and I don't want that at home."

◆ Nice big Apple Macs with big screens running *Cubase* certainly make life a good deal easier.

Soundtracks & TV themes

Making Out series 1 and 2.
Shooting Stars.
Reportage.
Night Voice
America's Most Wanted.

Television man

Stephen and Gillian's cosy set-up is one direct result of the amount of work they found themselves doing for television. The first program they worked on was the BBC's *Making Out*.

"It was around the same time we were finishing *Technique*," recalls Gillian. "New Order had agreed to do it a year before and a bloke arrived unexpectedly, asking if we'd got the music. The program hadn't been edited and was waiting for our feedback."

"We were at Real World doing *Technique* at the time, and there happened to be another room we could use," says Stephen. "Basically, we raided bits from *Technique*, but we still only got one and a half episodes finished while we were there. We had to go to our house, build a studio, get all the stuff to sync up and make it all work."

This in-at-the-deep-end introduction to working for TV fascinated Stephen and Gillian. As Gillian says: "We got interested then. It was good to be able to do music and not have to bother about the sound quite so much. We did things like an exercise-video music pastiche, a Pet Shop Boys bit and music for a male stripper – it was dead good fun."

"The daftest one, though," says Stephen, "I mean the weirdest way of writing a song I've ever come across was when a company

We're playing for England, Eng-er-land

With the possible exception of Norwich City's *Never Mind The Danger*, New Order's laconic dance attempt *World in Motion*, written to stir the lads to victory in Italia 1990, remains arguably the best football song ever. It is most definitely the best England has ever had to get its tonsils around.

Granada had already been using New Order snippets on its sports programs and NO had provided the music for a Granada show with Rodney Marsh and George Best ("probably *Pints I Have Known*," says Stephen). Eventually it was a far-sighted man from the FA who got in touch and asked if they'd do the business. Barney had terrible trouble with the lyrics, eventually leaving them to that hard man of comedy, Keith Allen. "When you've not met any footballers," says Gillian, "you have this image of what they're like. We were really disappointed. It was like having a load of lager louts let loose in the studio making jokes about the size of our organs."

Still, a number-one hit single is a number-one hit single, and the semi-final of the World Cup is something England won't be enjoying this time around.

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writer, Debbie, had written the lyrics and gave them to us to write the music. We sent them a DAT of it and we had no idea how they were going to sync it.

"We also sent the music and the melody line for how we thought the singing should go, but we never met. The whole cast sang it and it's brilliant! We did the music on one track of the DAT and they did the vocals on the other and then we mixed it up here."

After turning down the somewhat grim proposition of doing a soundtrack recording for a TV documentary on female circumcision, Stephen and Gillian found themselves with a lot of material on their hands and not much to do with it.

"That's really why we did The Other Two," explains Stephen, "because we had all this stuff, a really large collection of tunes. Some of them were really good songs. When we were working on soundtracks, we missed being able to get people's reaction to the music. With TV, nobody ever pans you or anything and we didn't get a BAFTA – ha ha. So we thought we'd try another angle."

A less than enjoyable experience with an American TV network helped towards a need for a break from that world, too.

"We did the music for this show called *America's Most Wanted*. It was just dealing with bureaucracy. It ended up with the two directors on a conference phone and we'd have to play an orchestral stab down the phone for them. They had to say whether it was good or not," explains Gillian. "*Making Out* was good because, although we were still having to work with directors, they were more tuned in. The Americans just wanted clichés. With *Making Out* we had themes for everybody. It was so exciting. Every week we'd look forward to it."

> *"We did The Other Two because we had a really large collection of good tunes"*

Finally, Stephen ruminates on the hassles that have dogged the appearance of this LP and looks to the future.

"After all the problems we've had with this LP, it's weird that it's coming out at last. There's been a delay of two years. Doing something like this takes up a big chunk of your life; we've put a lot of work in but it seems never-ending – like whittling wood – there's always more you can do, but if you're not careful there'll be nothing left!

"It was impossible to release this album previously because of problems at Factory [Records] and we were also trying to sort out *Republic* at the same time – that was really the priority project. But now it's out, we'll start writing a new one."

Any plans to play live at all?

"We're thinking about it. We've got to get some new stuff out the of way." With a new TV series (by the same team that brought you *Making Out*) in the pipeline, The Other Two look set to be busy over the next year.

Oh... and I, uh, forgot to ask, does this mean New Order have split? Hello...? FM

Kit list

Otari MTR 90 Mk II multi-track
TAC Magnum 36-input desk
Panasonic SV 3700 DAT player
Lexicon LXP 1
Lexicon LXP 5
Lexicon MRC
Lexicon 300
Eventide H3000 SE
Yamaha SPX90
BBE Sonic Maximiser
Russian Dragon
Yamaha 2020 B compressor
Drawmer DC221 compressor
Drawmer M500 compressor
Drawmer dual gate x3
DBX 263X de-esser
Yamaha PS 2040 amp
Yamaha DMP 7
Yamaha NS 10M monitors
ATC 50 speakers
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TC 1128 graphic
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Sony optical drive
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E-mu Vintage Keys
E-mu Proteus I
E-mu Proteus II
E-mu Pro/cussion
Kurzweil K2000 with 5MP-K option
Roland D-110
Roland D-10
Roland JD-800
Roland D-50
Roland Juno 106
Korg M1R
MotU MIDI Time Piece x2
Akai S3200
Akai S900
SRC AT synchroniser
Digidesign 4-channel Pro-Tools
Digidesign SMPTE Slave Drive
Digidesign Sample Cell
Oberheim Matrix 12
Oberheim Matrix 1000
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Studio Electronics MIDI Moog
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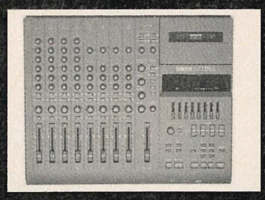

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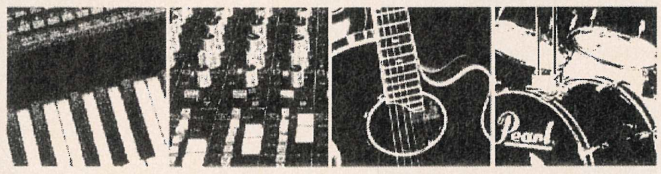

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Micro-thin sampling

Roland has managed to cram a full-blown sampler into just one unit of rack space. The question is, can it match the performance of its larger brothers? Maff Evans finds out.

MOST MODERN SAMPLERS are pretty large affairs – many of them taking up three whole units of rack space. These days, however, with the technology getting more compact all the time, slimmed-down samplers are becoming increasingly common, and Roland's latest baby is one of the slimmest you can get, measuring just 1U high.

There have been 1U samplers before, but these have tended to be cut-price affairs with fiddly and unhelpful two-line displays – hardly the best way to edit. The new Roland S-760, by contrast, promises to avoid this by being the first 1U sampler to feature a 160x64-dot LCD capable of displaying graphics and full screens of information.

Having said that, with the sampler market getting more advanced by the month, just having a good display isn't really enough. So the question is: how does the S-760 stand up as a sampler in its own right? Time to plug in and get recording, I think.

Partial to a patch

The first thing to take into account is the architecture of sounds within the S-760. This architecture has been carried over from previous Roland samplers (namely the S-750 and S-770) and is akin to the system used in recent Roland synthesizers.

As you may expect, the basic sound is a sample, which is the raw waveform that can be recorded, looped, truncated and so on. To actually play a sample you have to assign it to a Partial. This is where you tune samples, layer them, EQ them, add filter and amplitude envelopes and basically turn them into the synth-sound building blocks.

The next level is a Patch, which acts pretty much like a synth preset. You select the Partial you want to use, set the key-span it will respond to via MIDI and adjust how MIDI controllers will affect it (setting pitch-bend ranges, velocity response and other synth sound effects).

Finally, patches are organised into what's called a Performance, which is – roughly speaking – a multi-timbral set-up. Once you've been through the this process, you can actually play a sound.

Actually getting through all these levels is a bit of a chore, though, especially for anyone who has used a sampler with simpler record, trim, program-assign structures. It seems like a waste of time to have all these levels when a sampler can easily work on a more basic level. Sure, it can make the sound architecture work more like a synth's, but if you're just trying to create a drum loop and some vocal effects you could do without having to wade through pages and pages of sample/partial/patch/performance-assignment data.

"There have been 1U samplers before, but only with fiddly two-line displays"

There is a way of skipping it to a certain extent, though, using the Quick-Sample option. This automatically takes you through the Partial-creation stage and enables you to sample a sound to be placed straight into a Partial. It saves a bit of time but, unless you feel confident enough to sample loads of sounds one after the other (without any editing), it still takes a bit of fiddling.

Detailed display

One major selling point of the S-760 is the highly detailed LCD, which makes it possible to do much more flexible editing even in 1U of rack space. It is certainly a very clean and clear display, with a lot of detail, but it hasn't been used to full effect in a lot of cases.

The main benefit of having a screen that is capable of graphics on a sampler is that you can edit samples and programs graphically. However, this is not to be had on the S-760. The only time you even see a waveform is just after it has been recorded (to get an idea of how loud the sound is and whether it has overloaded the sampler).

Unfortunately, you can't actually carry out any edits on the waveform. The only way you can loop, cut, splice and otherwise trim sounds is to do it using numbers. A glaring oversight, methinks. This wouldn't be so bad if you could preview ▶▶

On the *FM* CD

The demo track on the *FM* CD, *Seasinger*, was created only using sounds sampled on the S-760. No additional effects processing was added and no other synths or samplers were used – it's just a straight recording to DAT with the sampler being driven by a MIDI sequencer.

As you can hear from the recording, a couple of problems come to light. First, there is quite a lot of noise on the pad sound – even with the low-pass filter setting turned down very low.

This is because the filter cut-off setting doesn't have any real effect: you have to alter the filter envelope to get decent results. With a bit of tweaking you get there, but it's a chore.

Another filter problem is also evident on the resonant bass sample. Listen for the ringing and whining that creeps in with the resonance switched on.

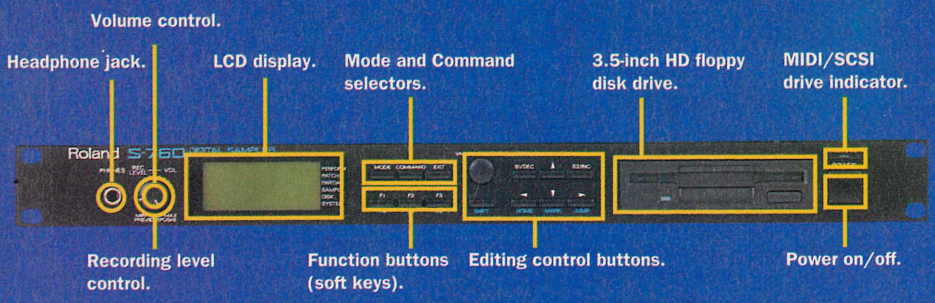
Perhaps the worst problem is the audible click when more than a few samples are played together. Very frustrating. This isn't because of the samples themselves, since they play fine on their own (and in a single-track sequence), but play them together and it's 'tick-tick-tick'.

After the impressive sound of the S-750 and S-770 I expected a much cleaner sound, but was disappointed.

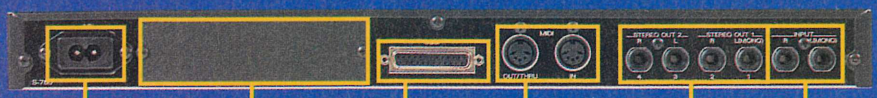
Technical specifications

Processing	16-bit A/D, 18-bit D/A, 24-bit internal
Sample frequency	48kHz, 44.1kHz, 32kHz, 24kHz, 22.05kHz, 16kHz
Wave memory	2Mb
Polyphony	24-note (maximum)
Storage	Built-in floppy drive (2DD/2HD) and SCSI connector
Display	160x64-dot backlit LCD
Program memory	1 Volume, 64 Performances, 128 Patches, 255 Partials, 512 samples
Connections	Left and right phono inputs, 4x phono outputs (4x individual or 2x stereo pairs), MIDI In, Out/Thru, SCSI, headphones
Frequency response	10kHz – 23.4kHz @ 48kHz sample rate 10kHz – 21.5kHz @ 44.1kHz sample rate 10kHz – 15.5kHz @ 32kHz

Just a slim profile...



And the back of the rack



trim settings with the pointers set (using the button labelled 'Preview'), but you can't.

The only time this occurs is when there is silence before and after a sound, when the S-760 will automatically get rid of it. With the slightest background noise or hiss, pressing the preview button gets the S-760 to play right from the start to the end – regardless of where you've put the pointers. If you carry out a splice or a trim and it goes wrong, it's time to record again, I'm afraid. Excruciatingly frustrating.

After all the effort of getting a sound edited correctly, you might hope that at least the finished results will sound good. Sadly, something seems to have got lost between the old 750 and 770 samplers and the new wafer-thin version. Whereas the sound quality of the earlier models was superb, thanks to the extensive filter effects, the S-760's filters don't really come close to those of the older versions.

Even with the filters on extreme settings, they don't seem to have a huge amount of effect. After some investigation, it turns out that you have to use the filter envelope to do any kind of filtering at all. The somewhat unhelpful manual doesn't explain this at all, but, to be honest, it seems a bit of a pointless exercise in the first place. Sure, have a filter envelope, but at least give overall filter control without it. And the resonance... What happened? All it introduces is a harsh ringing sound.

Toys to play with

On first sight the range of features to play with looks pretty appealing, mainly because of their extensive range. When you plough in and test some of them out, though, you get mixed results.

Starting at Performance level, the way you actually configure patches is good. You can set the MIDI channel, program number, level and pan all from one screen (even if you do have to scroll sideways to get there). Synth programmers will find this method familiar, but getting to this stage still takes time and work.

The EQ effects are very good indeed, with a tight and effective 2-band affair being applied to finished sounds and the sample input – a nice idea.

On the minus side, some of the effects edits take ages to carry out. One of the most interesting effects on a sampler is time-stretch (after all, getting a drum loop to fit otherwise is a bitch). I tested this using a short, 1-channel vocal sample recorded at 44.1kHz. Time-stretching this to 150% took a staggering 15 minutes. The results weren't too hot either.

Going back to the performance aspect, there's no way of actually controlling the pan of the sound via MIDI (unless this is a hidden function also not mentioned in the manual). Sounds are placed in the stereo image and stuck there. If you want dynamic stereo sweeps, either record stereo samples (halving the memory) or look elsewhere.

The disk functions take some getting used to as well. After struggling to get the S-760 to recognise a disk formatted by the sampler itself, I realised that to save a Performance it has to have a name. Not that the machine tells you this – I mean, what does "Not a sound disk" as an error message mean to you? Unfortunately the manual doesn't give any hints either.

Competitive edging

These problems just stack up against the S-760 in a way that can't be ignored. Sure, a fiddly editing system could be got to grips with eventually – after all, the S-750 and S-770 offer good rewards once you've worked out the sound hierarchy – but there seem to be some obvious flaws in this one.

It wouldn't be too bad if it was just the sound architecture and panel functions that you had to cope with, but the patchy edit screens, confusing menu paths and poorly explained functions will have you tearing your hair out. (I should know – the cat is still cowering in the corner.)

The sampler does its job adequately once you've spent several hours trying to get it to do what you want it to, but there's heavy competition out there and the S-760 doesn't really make the grade – especially at a price of almost 1,700 quid.

Roland really had something quite special with its previous range of samplers, but has been passed on the outside lane by other machines from other manufacturers. This latest offering may be much thinner than most models available but, as they say, size isn't everything. FM

Alternatively...

Well, where do we start? There are many other samplers around, including Roland's own S-750 and S-770 machines and the DJ-70 keyboard sampler. The S-750 is in short supply now (since the S-760 replaces it), and at £3,500 it's not too cheap either. The DJ-70 is a much better option, even though it's a keyboard. The editing system and filter effects are better (you can edit waveforms graphically) and the control system enables you to get excellent results very quickly. It's also £100 cheaper than the S-760.

One point worth mentioning is that Akai still has a stranglehold on the sampler market – a hold which has been considerably boosted by the release of the new S3000 range. Considering the price of the S-760, you'd be better off stumping up the extra few hundred quid for an Akai S2800. The sound quality is cleaner, the range of control over sounds is more flexible, the polyphony is greater and the editing system knocks spots off the S-760. Our advice is to go for the cheaper DJ-70 or keep saving and go for the Akai. After all, what's an extra 1U or two of rack space among friends?

◆ Akai S2800, £2,199
Akai, tel: 081 897 6388

Roland S-760

1U rack-mount sampler
£1,699 ◆ Roland , Atlantic Close, Swansea Enterprise Park, Swansea, West Glamorgan SA7 9FJ ◆ Tel: 0252 816181

Verdict

Features

Ease of Use / Setting up

Quality of results

Value for money

A fair few features on offer, but the convoluted editing system and questionable quality seriously hamper things.

FUTURE MUSIC RATING 62%

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This last, critically important spec bears some explaining. The absolute, utter, theoretically lowest ***possible*** limit of E.I.N. is –130.85 dBm@150 ohms. That's the "noise" output of a 150-ohm resistor at 70°. No mixer in existence can achieve it. Many ultra-expensive studio consoles such as Neve and SSL ***do*** spec out at –129dBm. But the MicroSeries1202 is the only mixer in its class that has a real and ***verifiable*** E.I.N. specification this low — within 1.25dB of the theoretical noise floor! The MS1202's preamps also have extremely high headroom and a natural, uncolored, ***musical*** sound. In fact, the 1202 is becoming the overwhelming choice of audiophiles for live-to-DAT recordings. Our secret? Instead of cheap, off-the-shelf integrated circuits, Mackie preamp stages use discrete circuitry with 4 conjugate-pair, large-emitter geometry transistors — the lowest noise/highest quality available. This means virtually undetectable E.I.N. even when you're running a channel at extremely low gain levels.

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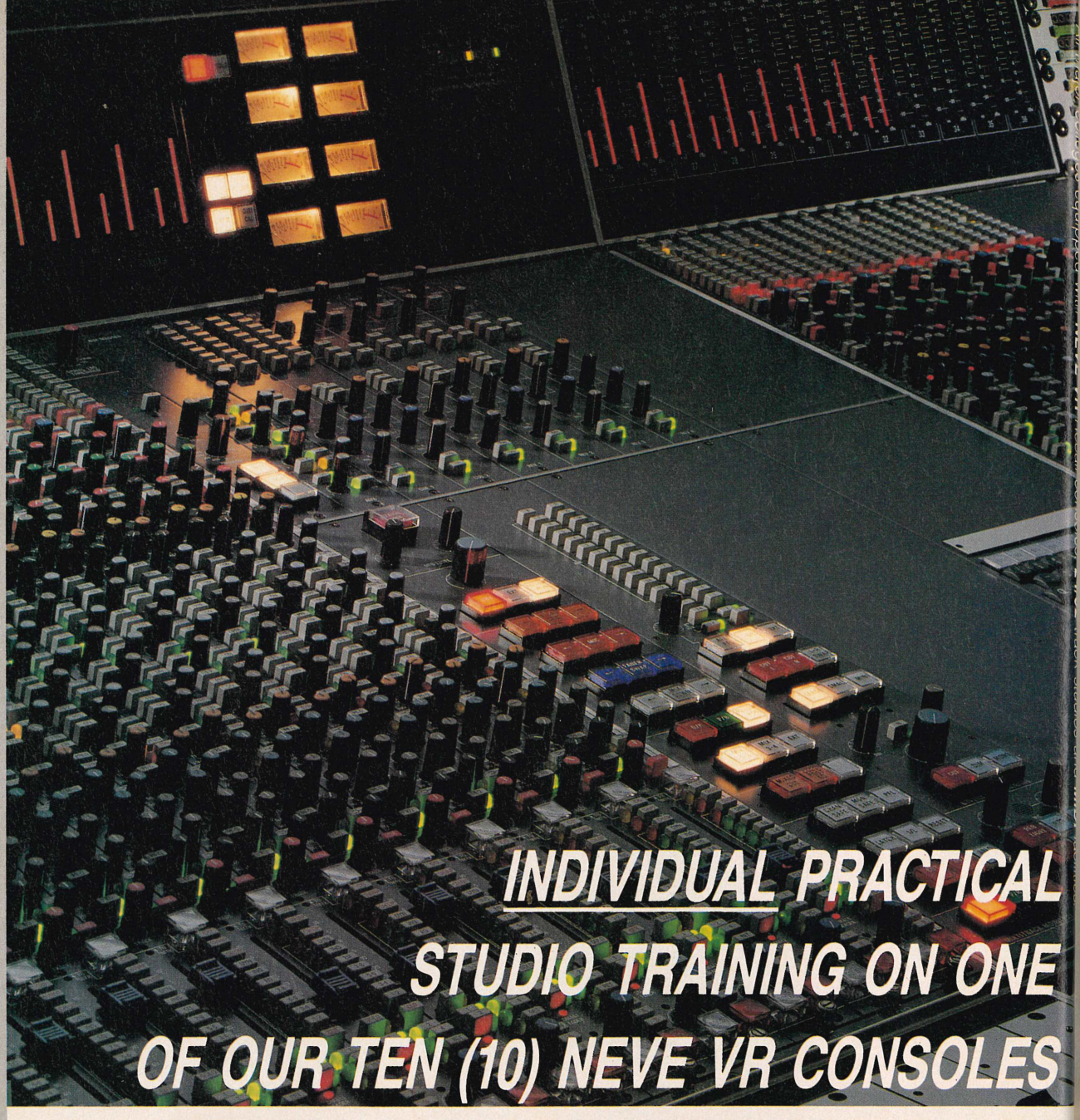

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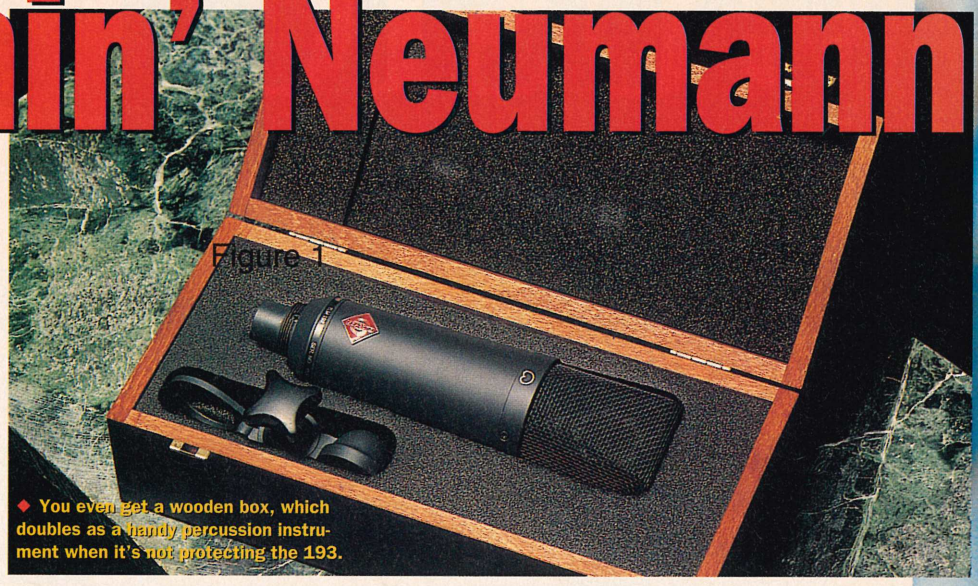
Stormin' Neumann

Neumann has a reputation for top-notch microphones with serious price tags. However, the new TLM 193 aims to make Neumann quality more affordable. André Jacquemin vibrates its diaphragm.



◆ You even get a wooden box, which doubles as a handy percussion instrument when it's not protecting the 193.

THE NEW NEUMANN TLM 193 is certainly a handsome beast, nestling cosily in its secure hard-wood case which is very reminiscent of the early valve mic boxes they used to put Neumanns in. You can tell instantly that you have a microphone of quality.

This model is very similar to, and based loosely on, the renowned U87, one of the most popular vocal mics to date (they're the ones that are in about 90% of the pop videos you see whenever there's a close-up of someone crooning down a microphone). It also has the same capsule as the tried-and-tested Neumann U89 which has been around since the mid 1980s.

The mic itself is very nice to handle and is robust, but it's obvious you don't want to bash it around too much. Being a condenser type, it needs external power (phantom power – see the Get Your Mics Right feature in *FM* 5&6 for more on mic technicalities and techniques).

It only has a straight, fixed cardioid position and you have to be selective in its uses – especially if you place singers round the back of the mic, because you won't hear them (on the other hand, if you have a suspect vocalist when you're doing group vocals, that's just the place to stick 'em). However, this is not going to put you off for the majority of your recordings.

Sing a song

Stick the 193 in front of a singer and you find it has a nice, bright sound to it, so it will also make those acoustic guitars and other close-miked instruments zing into life.

It would have been nice to have had an input pad on it at the front-end, since instruments such as drums do have very loud peaks. Even on close-miked guitar amps turned up to full whack you can overload the input of a mic, but this isn't a recommended application for this type of mic. You have to watch placements more carefully, but nothing will be incurable if you have a pad on your desk or are using compressors to handle loud peaks.

> *"it's worth having at least one mic in your collection for high-quality takes"*

On dynamic instruments, such as drums, I prefer the sound of dynamic mics, but using the 193 as an overhead mic does make the kit sound smoother. The cymbals sound vibrant with the 193 in place and rather flat without it.

As to the actual noise level the mic's amp makes, it is negligible – little gain is needed on the desk to get a reasonable level, even when using it for straight voice-over applications. Remember, however, that you must have phantom powering on your desk, otherwise you will need an external 48-Volt power supply.

Although there are many cheaper mics made to do similar jobs, you will always find it worth having at least one mic in your collection for high-quality takes. Even if you have a limited desk with poor EQ, running the 193 flat will enhance the sound of the end product.

I was lucky enough to have had the mic on hand for some TV-jingle and promo-commercial work for The Cartoon Network, so those of you lucky enough to get satellite TV can tune into TNT and listen out for the blues cartoon promos they will be running.

All the vocals were recorded using the 193. The lead vocalist has a very loud and dynamic voice and with the help of a hint of compression, the mic captured the performance beautifully – especially with the brightness on the top end which helped the voice to cut through.

Vocals to die for

One of the important things to remember is that people mainly listen to the vocals on a recording, so you need to get them sounding great. Fortunately, this mic has all the characteristics to do it and represents a great investment if you're serious about getting professional results.

Of course, nearly £1,000 is a lot to ask when many of us can barely stretch to a reasonable multi-tracker and mixing desk, but if you are in need of pro-mic sounds and can muster the readies, this is a fine piece of kit to add to your armoury. FM

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With a name like Neumann in your camp it's easy to impress your friends, since everybody knows its products aren't cheap. You also have the knowledge that you own one of the finest microphones made by one of the world's most respected manufacturers. After all, Neumann has been making mics since 1928, when the Reisz company provided the central microphone (developed by Neumann and Reisz, his employer) in the Vox building in Potsdamerplatz, Berlin –

Despite this pedigree, whenever a company brings out a new product some big questions still apply. These are:

- Is it any good?
- What will it do that other models don't?
- Is it good value for money?
- How much will it cost me?
- How long will it take before it pays for itself?
- Will my mates envy me?

To which, in the case of the TLM 193, the an-

Neumann TLM 193

Condenser microphone
£958.80 ◆ Sennheiser UK, 12 Davies Way, Knaves Beach Business Centre, Loudwater, High Wickham, Buckinghamshire HP10 9QY
◆ Tel: 0628 850811

Verdict

Build quality

Ease of Use / Setting up

Quality of results

Value for money

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FUTURE MUSIC RATING 88%

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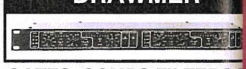

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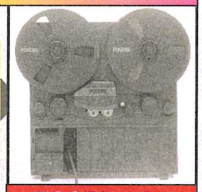

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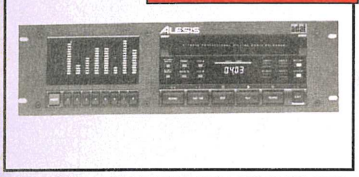

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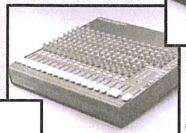

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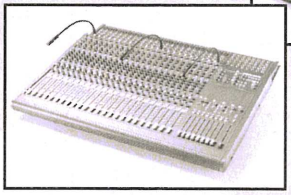

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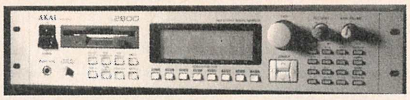

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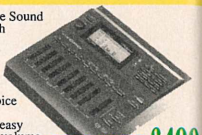

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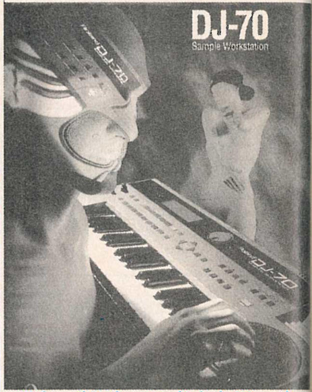

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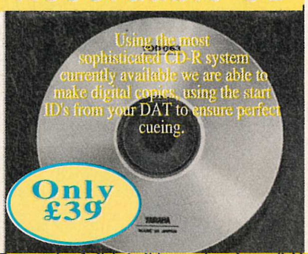

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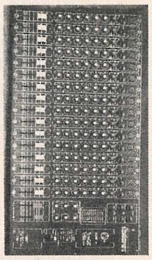

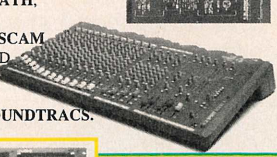

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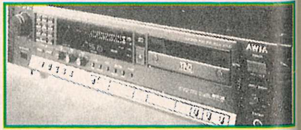

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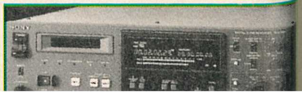

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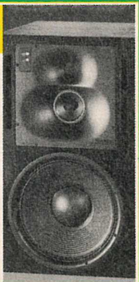

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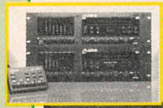

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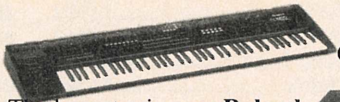

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THE MUSIC CORPORATION...THE MUSIC CORPORATION...THE MUSIC CORPORATION...

Return of a legend

The Minimoog simply refuses to lie down and die. Mark Jenkins looks at its latest incarnation...

◆ Squeezed into 19 inches, the Studio Electronics SE-1 aims to offer everything the old Minimoog could and much more...

THE STUDIO ELECTRONICS SE-1 rack-mount proudly bears the legend 'Handmade in the USA'. Only the Americans would go to such lengths to preserve a legend, but grateful musos everywhere may give thanks, because the legend in this case is the Moog Minimoog.

SE has done well over the last few years by modifying old analogue synths such as the Mini, Prophet 5 and Oberheim SEM (Synthesizer Expander Module) into rack-mount, MIDI-equipped format, but supplies of these (or at least of owners willing to have their machines hacked up and rack-mounted) are now rapidly running out. Hence the SE-1, which claims to faithfully reproduce the original Minimoog circuitry together with SE's many modifications.

Mini modifications

After the release of polyphonic synths, such as the Prophet 5 and more affordable Japanese instruments, the Minimoog seemed less valuable. Users began to feel the limitations of its lack of memories, oscillator sync or dedicated LFO (Low-Frequency Oscillator). Although the expressiveness of the design came from its simplicity, its comfortable pitch bend and modulation wheels, and its accessible on/off switches for glide (portamento) and decay, some users removed the Mini's keyboard and used it as a remote controller, while several American companies began to offer custom modifications.

This led to the idea of removing body and keyboard from the machine, adding in MIDI and then rack-mounting what was left; which brings us back to the SE-1 with its programmable memories, extra envelopes, patch naming and new keyboard modes denied to users of the traditional Minimoog.

The SE-1 offers 99 memories, of which 83 are programmed but variable and 16 are left empty for user programming. Each sound has a number on the LED and a name on the LCD display; these vary from simple 'Bass 1' and 'Bass 2' to more florid and less informative titles such as 'In the Doghouse'.

Basically there's a stack of soft, hard and twangy basses, several buzzy and soft lead melody sounds, a couple of high-resonance pingy effects, and a few flute and reed imitations. The range of expression on the sounds is quite extensive. Some sounds are highly velocity responsive over MIDI and some aren't. Some have wide pitch-bend settings, others narrow.

As on a traditional analogue synth, sounds can be edited 'live' from the front panel and this is one of the SE-1's big selling points. With the exception of the Pulse Width dials, every control on the front panel is assigned to a single function, so you can change the sound in real time without having to call up a menu page. Changing the sound in this way is very intuitive, and the response of everything is very smooth – with just a couple of exceptions. If a sound has been called up from memory there may be a jump to the current setting when you alter a parameter such as Oscillator Pitch and the filter cut-off setting is audibly divided into around 60 steps. This can sound gritty and unpleasant when changed by hand while playing, but is fine when the filter is closed down, even while a note is being played, by one of the envelopes.

SE ecstasy

The layout of controls is roughly similar to that on the original Minimoog, although all controls are slightly smaller than the originals and space has had to be made for the LCD display and editor or 'Q' dial. Each of the three oscillators can have triangle, sawtooth or pulse wave shapes selected individually or together, and the shape of the pulse wave can be adjusted from square to thin-pulse using the Pulse Width dials.

On the original Minimoog each oscillator could be set to only one wave shape and just one of three pulse-width settings, though there was an additional wave shape in the form of a modified sawtooth.

> *"Over £1,500 may seem a lot to pay for something with no built-in effects..."*

On the SE-1 each oscillator can have its pitch set in semitones over a range of five octaves and then be fine-tuned on the LCD display; on the original Mini only whole octaves could be set, with other intervals and fine-tuning set using a dial. Oscillators 2 and/or 3 can be hard-synced to Osc 1, which creates harsh, metallic harmonics when you try to bend their pitch – this is not available on an unmodified Minimoog.

The filter can be set to 24dB per octave for convincing Minimoog imitations, or to the smoother 12dB per octave for Oberheim SEM sounds. In 24dB mode only, the filter oscillates if resonance is set above the 3 o'clock position, and this can help create whistling, spacey noises. The filter setting can track the keyboard so sounds become brighter as they become higher; on the SE-1 this is continuously variable as compared with a choice of only two settings on the Minimoog.

The original Mini has two envelopes but the SE-1 has four, of which Envelopes 1 and 2 are hard-assigned to Filter and Amplifier respectively. Envelopes 3 and 4 can be assigned to Oscillator 1, 2 or 3 Pulse Width to create sweeping, phasing effects ▶▶

Mini history

Arguably the most desirable synth of all time, the Minimoog derived from Bob Moog's huge modular systems and was one of the earliest synths to be relatively portable. Used by Keith Emerson, Rick Wakeman (up to five at a time), Tangerine Dream and vast numbers of session musicians from the pop, funk and dance fields, the thickness and cutting power of the Minimoog sound contrasted with the thinner, more nasal sounds of American and Japanese competitors such as the ARP Odyssey and Roland SH-2000.

The Mini sound derived from the subtle overdriving of oscillator and filter designs which other manufacturers tried to copy until Bob Moog's patent lawyers stepped in. The Mini wasn't incredibly versatile, boasting only monophonic playing and three oscillators, of which one had to be switched to Low Speed if any kind of vibrato or tremolo was required. No patching, ring modulation, sample-and-hold from the white-noise source or pitch control by envelopes was available, so bizarre sound combinations were out. Basically the Minimoog could create lead sounds, bass sounds, and sea noises (I kid you not).

Despite these limitations the Mini cropped up in all styles of music – check out anything from Emerson Lake & Palmer's *Ladies & Gentlemen*, Rick Wakeman's *Six Wives* or Camel's *Mirage* to Tim Blake's epic Minimoog solos on *New Jerusalem*, Jan Hammer's guitar imitations or Kraftwerk's use of the Mini as a distinctive dance instrument.

TRACK 10

The return of the golden age of knobs

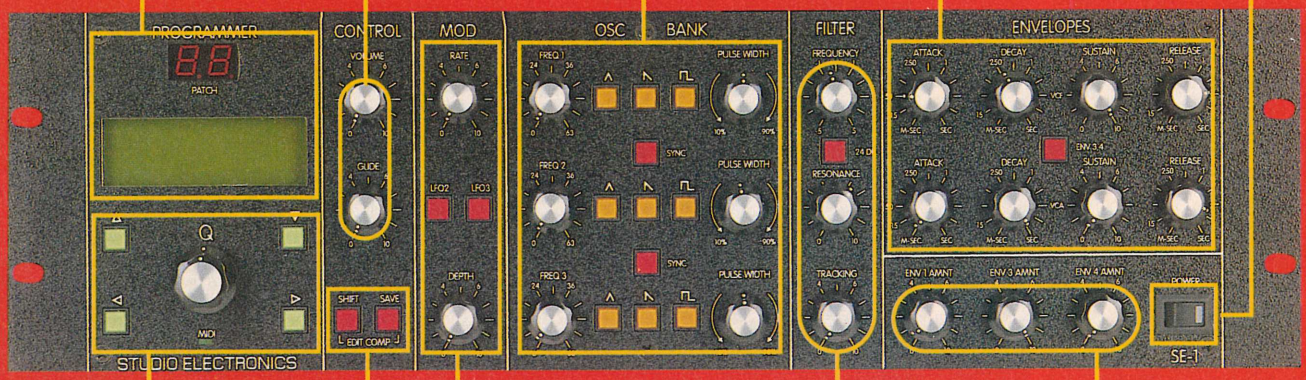
Displays
The LED shows the current program number and the LCD shows any relevant editing information.

General Control
These two dials adjust the overall volume and glide (portamento) settings.

Oscillator Bank
Adjust the wave shape, sync settings, frequency and pulse width of the three oscillators here.

Envelope
The attack, decay, sustain and release amounts for each of the four envelopes can be set here.

Power
Dead simple this. Switch on the SE-1 (or off if it's on already) with this switch.



Q
Move the cursor around the screen and select programs with the dial. The LED shows MIDI activity.

Shift and Save
Function keys used while editing, but recall the unedited sound when pressed at the same time.

Modulation
Set the depth and rate of modulation along with the LFO source (LFO2 or LFO3).

Filter
Adjusts the filter's cut-off frequency, keyboard tracking and resonance and toggles the 24dB cut option.

Envelope Amounts
These three adjust the amount of effect the above envelope settings will have on the sound.

during the course of a note; or to the level and pitch of Oscillator 2 and 3 to create mix or pitch changes during the course of a note; to Ring Modulator Level to create clangy, metallic sounds; to Noise level for sea, wind and percussion effects; and to Resonance to alter the tone of a sound during the course of each note. Most of these techniques are denied to the unmodified Minimoog, although it must be said that most of them aren't demonstrated in the SE-1's factory sounds either.

Each of the four envelopes can have a Dynamic Percentage setting which determines the extent to which velocity sensitivity controls their level. Again not available on the original Mini nor on most MIDI retrofitted Minis, the addition of velocity sensitivity makes the whole instrument very much more expressive.

The SE-1 boasts not just one but three LFOs which can be routed to control vibrato on any or all of the oscillators; level of any or all oscillators; ring modulation or noise levels; filter frequency or resonance; and pulse width of any or all oscillators. This should give a tremendous number of differing types of vibrato, tremolo and repeated wah and other cyclical effects. Also, each LFO can be set to Triangle, Square, Sawtooth Up or Down, Noise or Sample and Hold. Again, most of these possibilities are unavailable on an unmodified Minimoog.

SE-1 in control

The most distinctive new features of the SE-1 as far as traditional Minimoog users are concerned will be its Control and Programmer sections. The Control section has a conventional Volume knob as well as Glide Level, but also features illuminated Shift and Save buttons. In the Programmer section are the LCD display, a two-figure LED for patch number, Up/Down and Left/Right cursor buttons, a MIDI activity LED and what's called the 'Q' or data-editing dial.

> *"The addition of velocity sensitivity makes it very much more expressive"*

Holding Shift, you can use the cursor buttons or Q dial to step through the editing pages for functions such as LFO and envelope assignment. Press Save when holding Shift and you can compare edited sounds with their originals. Pressing Save and the cursor buttons enables you to step through and edit the current patch name before saving it to the current memory (a full stop appears on the LED display when a sound is being edited). The Audio Mix Level page is also accessed this way. The handbook warns that using all wave shapes on all oscillators may result in output distortion, but this may be desirable for some sounds.

Miscellaneous Edit Page 1 offers Transpose up or down one octave, Glide On/Off, Multi Trigger and Note Priority selection. On the Minimoog, the lowest note played will always sound and the envelopes will not retrigger if you continue to hold a note. On note played can sound, and the envelopes can re-trigger on every new note if desired.

Minimoog glide is also distinctive in terms of the way it approaches the desired note; some playing techniques depend, for their expressiveness, on you sticking to the old-style keyboard modes which sound quite authentic, while others will obviously benefit from the new options.

Miscellaneous Edit Page 2 offers Low Pass or High Pass settings for the 12dB per octave (SEM) type filter, inversion of Envelopes 1 and/or 3 for slow-attacking sounds, linear or exponential curves for all envelopes (which is largely a matter of personal playing style) and Memory Protect to avoid accidental alteration of presets.

Two MIDI Edit pages can assign Bend control from an external keyboard with variable depth to pitch, filter frequency and/or filter resonance; modulation and/or aftertouch to LFO 1, 2 or 3 depth, filter frequency or resonance; MIDI Controller 1 and 2 to various parameters yet to be defined; MIDI Channel from 1-16; and System Exclusive Send to dump any or all patches via MIDI to a disk filer, computer or sequencer.

One particular boon is that for the first time Minimoog users will find it's possible to have modulation programmed as part of a sound without having to leave the modulation wheel turned up.

Some parameters such as Oscillator Volume Mix, LFO Wave shape, White Noise Level and Sample and Hold are rather hidden within the LCD display's Edit pages, but then again, many of these don't exist at

Technical specifications

Format	3-unit, 19-inch rack-mounted monophonic synthesizer with circuitry based on Minimoog Model D.
Oscillators	3 (with three wave shapes including variable pulse, 5-octave range, fine tune, overall tune and transpose).
Envelopes	4 (with six wave shapes, velocity, modulation, aftertouch and pitch-bend control via MIDI).
LFOs	3 (with six wave shapes, velocity, modulation, aftertouch and pitch-bend control via MIDI).
Memories	100 (editable, with SysEx dump facility).
Effectors	White noise, ring modulation, glide, 12dB/octave high pass/low pass or 24dB/octave resonant low-pass filter, filter keyboard tracking.

hardly expect them to have become conspicuous front-panel features.

Like many American synths, the SE-1 doesn't do itself justice in terms of its preset sounds; there's nothing here to demonstrate Ring Modulation or Sample-and-Hold, two of the most radical additions to the design, and no stabs at early Wakeman sounds, bendy Keith Emerson *Lucky Man* rip-offs, huge Tangerine Dream twangs, or any of the sounds digital synths feature when they want to claim analogue-style capabilities.

By the book

The handbook (more of an operation leaflet) is basic and assumes reasonable knowledge of analogue synthesis, but this seems realistic given the type of buyer likely to go for an SE-1. The unit is light, reasonably well constructed and should be roadworthy, although in sticking to the Mini's black-knobs-on-black-panels colour scheme and omitting an LCD Contrast control, it really doesn't make for the easiest visibility on stage.

The SE-1 is still a monophonic instrument, and over one and a half thousand pounds seems a lot to pay for something which has no built-in effects and can only play one note at a time. If it can sound exactly like the treasured Minimoog, with its distinctive filter sound, modulation shapes and glide, it could be worth it; if it doesn't, your money is wasted. So does it?

The answer is yes; in every important respect it does sound like an original Minimoog (plus a whole lot more) and on its own terms, the SE-1 is a great success. The addition of memories is invaluable – vast numbers of new modulation possibilities are introduced – and MIDI control and velocity response can help make the instrument even more expressive. At the same time, most importantly, the traditional Minimoog sound is authentically preserved. Altogether a most desirable piece of kit. FM

Studio Electronics SE-1

Rack-mount analogue synthesizer
£1,521.63 ◆ MCMXCIX, 708A Tudor Estate, Abbey Road, London NW10 7UW
◆ Tel: 081 963 0663

Verdict

Features

Ease of Use / Setting up

Quality of results

Value for money

Very much a rich man's toy; very desirable. Does what it should, with one or two small exceptions and some unexpected bonuses.

FUTURE MUSIC RATING 78%

Alternatively...

A real Minimoog costs about £600 second-hand and a MIDI retrofit from Kenton and others (which won't, of course, add memories) is around £200, which gives a rough price of about £800. The Moog Source, which does have 16 memories, never quite captured the authentic Mini sound, and is rare at around £250 second-hand.

The OSCar's filter can be overdriven to imitate the Mini and it also has memories and usually MIDI, but like the Moog, the unit is hard to service (both OSC and Moog have long since disappeared). You can get an OSCar for around £350 second-hand.

The Cheetah MS6 and Oberheim Matrix 1000 are available second-hand from £250-£350 and can both be programmed (the latter only via computer) to do good Mini imitations, as can Sequential's Prophet 5 and 600 (the Pro One less so).

Newer possibilities include Novation's Bass Station (an MM10 controller keyboard with a built-in synth voice), and Peavey's rack-mount Spectrum Bass. E-mu's Vintage Keys has authentic Minimoog waveforms but doesn't really play like one, while for the price of an SE-1 you could alternatively buy a Roland JD-990 which is multi-timbral, has resonant filters and effects and can sound like anything.

- E-mu, tel: 031 653 6556
- Novation, tel: 0628 481992
- Peavey, tel: 0536 205520
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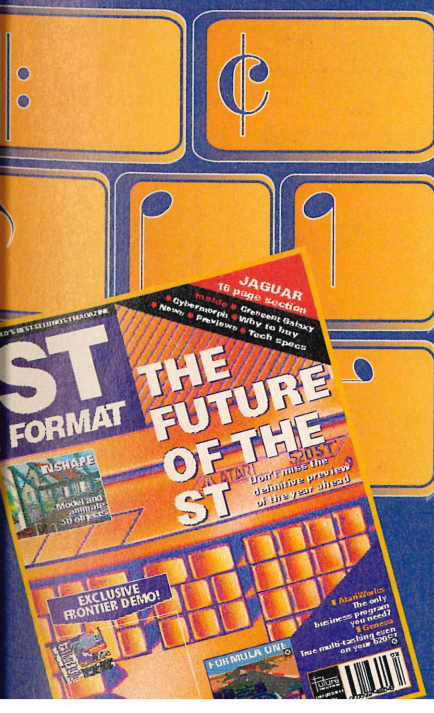

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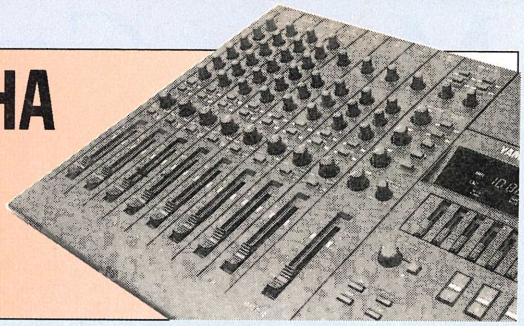

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AKAI	S1000 PB	KORG	M3 R	ROLAND	S330
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AKAI	S950	KORG	POLY 800	ROLAND	SH101
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ALESIS	MMT8	LEXICON	LXP1	ROLAND	TR626
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CASIO	FZ10M	ROLAND	D110	SECK	12:8:2
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KAWAI	K5	ROLAND	MT32	YAMAHA	TX802
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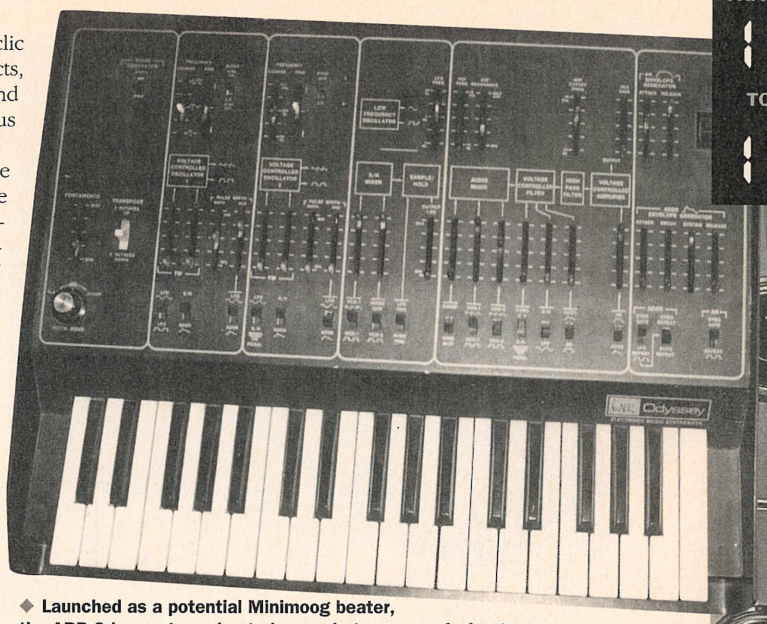
DATING FROM THE DAYS when synthesizers had real names rather than strings of anonymous serial numbers, the ARP Odyssey also has real snap-off knobs, real tuning problems and really fragile protruding keys. Despite these facts, the machine has become almost unfeasibly desirable in the last year or so as the last of the affordable Minimoogs disappear.

Released in 1972 (a year after the Minimoog), the Odyssey was cunningly priced by designer Alan R Pearlman (who also gave his name to the company) at just over £1,100 – a few pounds cheaper than Bob Moog's baby. The Odyssey had a much more technical, intricate look to it though, with a deep top panel sporting scores of long sliders, each with a tiny colour-coded cap to indicate the signal path. This was much more flexible and less comprehensible than on the Minimoog, however, so it's quite possible for a new user to spend an hour on an Odyssey without getting a single sensible noise.



◆ Launched as a potential Minimoog beater, the ARP Odyssey turned out cheaper but more confusing to use.

Mark Jenkins comes to grips with a uniquely versatile antique synth and takes a trip into the (fairly) unknown...

Incredible journey

Getting in deep

With the stranger options de-selected, the Odyssey becomes easier to handle. There are two analogue oscillators with sawtooth or variable pulse waveforms (the latter also controllable by LFO (low-frequency oscillator) or envelopes). These can be fed, along with noise or ring-modulator outputs, into a resonant filter controlled by LFO, envelopes, footpedal, sample and hold or keyboard voltage. The filter also has a high-pass control, so a variety of tones can be created.

The pitch of the oscillators is infinitely variable, so tuning can be difficult; one can be set to low frequencies to act as a second LFO, while the other can be synchronised to the first for screaming harmonic sounds. Both can be controlled by the LFO, by envelopes for falling or rising pitches, or by sample-and-hold for random effects.

Overall pitch can be flicked up or down two octaves and the noise generator can be set to white or pink (for thinner, tuned-noise effects). Keyboard portamento is variable and can be initiated with a footswitch; interestingly enough, the Odyssey isn't simply monophonic but, like some ARP 2600s, duophonic, although if two notes are played together the result is pretty thin.

The most complex sections of the Odyssey, those which set it apart from the Minimoog, are the AR (attack, release) and ADSR (attack, decay, sustain, release) envelopes and the sample and hold. Either envelope can be assigned to filter or output volume and made to repeat at the speed of the LFO with or without a key down. This enables the Odyssey to produce machine-like cyclic notes and effects, while sample and hold adds various types of modulation.

This circuit can be fed by white noise or the voltage outputs of either oscillator, which will, of course, vary extremely rapidly at audio frequencies, or very slowly if run as an LFO. Sample and hold can also be stepped from the keyboard, so a new level is chosen on each note, and a lag can be applied so it glides from one level to another rather than stepping instantly. Combinations of these techniques (particularly when run through the ring modulator) can create bells, chimes, storms, metallic sounds, explosions, resonant squelches and more.

Big-name sounds

Odyssey users include Klaus Schulze, who used its sample-and-hold for a semi-random backing sequence on *Picture Music* and for a tinkling chime sound using the resonant filter on many later albums; Dave Greenslade and Caravan in the prog-rock field; jazzer Chick Corea; Billy Currie for screaming lead lines on Ultravox tracks such as *Vienna;* and John Foxx on *Metamatic* and other early techno-pop works.

The Odyssey has proved an incredibly flexible creator of melodic or abstract sounds and is also handy for synthy percussion noises which could be sampled and assembled into whole electronic kits. A MIDI retro-fit would cost around £200 and, if it can stay in tune, any Odyssey should be a reliable source of acid-style bleeps and sequences – although its bass sounds will not be quite as shattering as those from a Minimoog or its filter effects quite as squishy.

Common and almost insoluble problems are: missing slider caps, broken sliders or even snapped-off keys – the key ends protrude dangerously over the front of the machine and are easy to bash inadvertently.

As for prices, £350 for a decent Odyssey would be a bargain, and anything from £450 to £650 for a late model with proportional pitch control could be expected. Even these prices are worth paying though, since, ever faithful to its name, the Odyssey can provide a real journey into the unknown... FM

Tech specs

Format 37-key duophonic synthesizer
Sound edit Portamento, +/-2 octave switch, 2 sawtooth or variable pulse syncable VCOs, VCO 1 switchable to LF.
Control Pulse-width from LFO and envelopes, pitch from LFO and ADSR.
LFO controls LFO with sine-wave and square-wave outputs.
Effects Low-pass resonant filter controllable from AR, ADSR, keyboard, LFO, sample and hold or pedal, high-pass filter, ring modulator, white/pink noise. Sample and hold from VCOs or noise by keyboard or LFO with lag. Repeat envelopes from LFO and/or keyboard.
Connections CV, gate & trigger In & Out, portamento switch, filter pedal and audio input on most models.

The three Odysseys

The ARP Odyssey was available in at least three versions with light-grey (2800), dark-grey (2811) or black-and-orange (2823) top panels. The 2811 added mini-jack trigger, gate and control voltage inputs and outputs to the filter pedal, portamento footswitch and external audio inputs, although 2800 versions sometimes have these as well.

The 2823 has more stable tuning and a balanced XLR audio output plus PPCs (proportional pitch controllers) which are soft white rubber pads that introduce modulation and pitch bend up or down according to how hard they're pressed. Because earlier models have only a pitch-bend knob with a small dead zone and separate vibrato controls for oscillators 1 and 2, it's difficult to introduce clean vibrato or reliable pitch bend, so PPC-equipped Odysseys are most desirable.

The ARP Avatar was a guitar synth comprising a keyboardless Odyssey with 6-channel fuzz on the input and a velocity-sensitive pitch-to-voltage convertor to track guitar parts (using the monophonic synthesizer voice). At a pinch it could be used as an analogue expander, but the much less flexible single-oscillator ARP Axxe keyboard went through similar regenerations to the Odyssey and is much cheaper second-hand.

◆ The RD-70 MIDI sequencer – technically, it's more of a data-filer – from Viscount.

Filing with style

A product that works as well as the Roland SoundBrush for a fraction of the price? Dave Robinson investigates.

ITALIAN COMPANY VISCOUNT didn't exactly knock us out of our swivel chairs with its first ventures into hi-tech music. The EFX-1 and EFX-2 multi-effects units scored only 62 and 65% respectively in *FM* 12. Now Viscount has a new product, the RD-70 MIDI sequencer, which comes complete with an intelligible manual – no more Anglo-Italian 'operate this manoeuvre after parameters alteration'-type phrases here. A mere snip at £239, can it challenge the likes of the Yamaha MDF2, Alesis Datadisk and Roland SB-55 SoundBrush?

Déjà vu

You may be wondering why we draw allusions to the three most popular MIDI-file players cum data recorders instead of MIDI hardware sequencers like Roland's MC-50. Well, the RD-70 is more a MIDI data-filer than a jobbing sequencer. Take a look at Roland's SoundBrush again (page 23 of *FM* 10), and take another look at the RD-70.

Rename a couple of buttons on the SB-55 – change Clear to Erase, for example. Now shift the disk-drive up a little, lose the additional MIDI port, drag the standby button to the other side of the front panel and move the three pairs of transport-control buttons to beneath the drive. Waddaya know? It's the front panel of the RD-70.

Coincidence so far, perhaps. The RD-70 reads MS-DOS-formatted double-sided disks, and Turnkey, the UK distributor for Viscount, tells us that the latest batch of RD-70s can read high-density disks and can play back Format 0 and Format 1 Standard MIDI Files (SMFs). So does the SB-55, but then again, so should all respectable data-filers. (The MDF2, neatly designed as it is, can only read Format 0, don't forget.) But when you dive into the operation of the RD-70, the similarities between it and the SB-55 are so obvious you can smell 'em.

The RD-70 is fiendish to program without the manual because of the large number of arcane key combinations – just like the SB-55. You can play back Format 0 and Format 1 SMFs in a programmed or random order, or in a combination of both – as with the SB-55. You can program a section of a song to repeat itself; change the time-base resolution to the unusual value of 240ppqs (pulses per quarter note); even record four smallish packets of System Exclusive data, assign them to four keys, and transmit them to the rest of your gear. Just like you-know-what.

Before you perform any data-threatening task, the RD-70 prompts you with 'Sur' in its three-character LED window. That is short for 'Are you sure?'. Exactly like the prompt you find on the SoundBrush.

As if further corroboration was required, I followed the far-from-intuitive directions for disabling MIDI Clock output. To do this, you press the [Enter] and [Tempo Increment] keys together, then toggle the mode with the [Rew] and [FF] keys. Lo and behold, you press the directly equivalent buttons to do the same on the SB-55.

Brush aside

Enough design comparisons – does the RD-70 perform as well as the SoundBrush? The answer is 'almost'.

There was not the slightest problem playing back Format 0 files. The RD-70 did everything it was programmed to do. However, it would not play back any number of Format 1 files in a programmed or random order. On completing playback of a single track, it waited for the next button press. So much for an autonomous performance.

Turnkey says that the problem lies with the RD-70 being unable to find the end of a Format 1 file. The remedy is to write a Stop command into the end of the file using the Grid (event) editor of Steinberg's *Cubase*. MIDI files produced by BCK and Midisoft already have this instruction built in.

One last niggle: the reading head updates after every single key press, forcing you to pause for a couple of seconds between steps of a programming operation.

Great contender

The RD-70 copes with Format 0 SMF handling, and general recording of source MIDI-sequence data, admirably. For SysEx recording and Format 1 file wielding, you may have to do a little tweaking, but the RD-70 gets there in the end.

The RD-70 is trying extremely hard to be an SB-55 and, on nearly all counts, it succeeds. If you are thinking of buying a SoundBrush, then the obvious advice is to buy one of these instead. But Roland's classy machine is £599 – how can Viscount produce something so similar for 40% of the price? The front panel of the RD-70 isn't quite up to the smooth finish of the SB-55, but there's nothing to suggest that cheap components have been used in its construction. Turnkey buys directly from the Italian factory, so there is no mid-stage distributor involved and hence less mark-up.

Roland will surely have to react to this massive undercutting of its market. Watch this space. FM

Viscount RD-70

MIDI sequencer
£239 ◆ Viscount Professional from Turnkey, 114-116 Charing Cross Road, London WC2H 0DT ◆ Tel: 071 379 5148

Verdict

Features

Ease of Use / Setting up

Quality of results

Value for money

Great value compared with what else is currently available in the same field, without any obvious compromises in quality.

FUTURE MUSIC RATING 85%

SysExcluded

SysEx recording and playback proved too taxing for the RD-70 at the default tempo setting of 120bpm. Bulk program data dumps could not be reloaded into either a Roland D-50 or an E-mu Vintage Keys without a MIDI communication error. (As regards the D-50, the 'error' temporarily knackered the synth's polyphony!) The solution was to reduce the playback tempo: at 80bpm there were no problems. The RD-70 is a direct-to-disk recorder – whether the access time, or the data-buffering rate, or both, are unable to deliver the SysEx goods is difficult to tell. There were no signs of weakness when playing straight MIDI note messages.

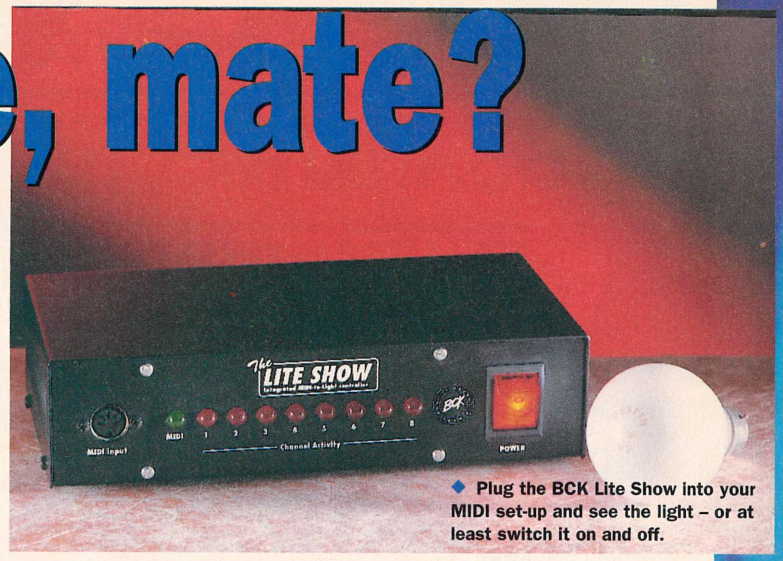
Alternatively...

The closest MIDI recorder-player to the RD-70, in price at least, is the Yamaha MDF2. This won the head-to-head in *FM* 10, scoring 83%. Roland's omnipotent SB-55 SoundBrush is expensive at £599, and requires manual (the book variety) support at all times. It scored 79%.

◆ Roland 0252 816181
◆ Yamaha 0908 366700

Got a Lite, mate?

Maff Evans takes an enlightened look at BCK's lighting controller – an illuminating experience for the gigging MIDI musician.



◆ Plug the BCK Lite Show into your MIDI set-up and see the light – or at least switch it on and off.

EVERYTHING'S SET. You're ready for a live performance: the songs are written, the live sequences worked out, the disks backed up, the PA sorted and the engineer is on hand. Hold up, though, what about the lighting? You could buy yourself a selection of lights and hire a lighting engineer to control the visual spectacle, but the guy won't know the songs and he's only got 24 hours to work out the cues for all the changes. *And* there's that massive strobe-effect bit on the finale – how's he going to work the buttons that fast? If only you had a BCK Lite Show...

Engineer in a box

The Lite Show MIDI-to-light controller is a small metal box which plugs into your MIDI sequencing set-up. Connect your lights to the back of the unit (via two standard sockets that can each handle eight separate lamps) and a MIDI lead to the front panel. That's as much setting up as you need to get the unit running.

You will now be able to control the brightness of up to eight lights via MIDI Note On messages. Write a track on your sequencer sending notes in the range C3 to G3 on MIDI Channel 16. The note number defines which lamp will light and the velocity governs its brightness. To turn a lamp off, send it a note with a velocity of zero.

It's surprising that such a simple programming system can enable you to create runs, fades and lighting scenes to run perfectly in sync with your performance. As you might have guessed by now, the Lite Show is an absolute piece of piss to use. I plugged it in and, having only flipped through the manual once, provided full lighting accompaniment for a previously written techno track within two hours. This controller really is very simple to operate.

If you don't feel that you're able to come up with scenes and animated lighting effects

> *"...good results with the minimum of fuss"*

off your own bat, don't despair – there are 63 preset static scenes which can be called up just by sending the appropriate Program-Change message. If you send one of these messages between the value of 64 and 78, you can access one of the animated scenes (including runs, fades, strobes and patterns). Send program 79 and it stops again. Nothing could be easier.

The results you can achieve from the system are pretty incredible too. Rather than the usual 32-level intensity found on other units (such as Hands On MIDI's Limelite), you can program each of the eight lamps to illuminate with 64 different levels of intensity, making fades look very smooth indeed.

Under the spotlight

There are a few niggles with this unit, but they are pretty minor compared to the plus points. Unfortunately, you can't edit any of the scenes stored in the Lite Show's memory, and to set up your own scenes you'll have to program them as MIDI patterns and save them to disk, calling them up and pasting them into a lighting sequence manually.

Also, the lights can't be controlled from the Lite Show itself – everything has to be done via MIDI. You can buy an external control pad and foot-switches if you don't want to use a sequencer with your lighting rig, but this is only for calling up scenes and animated patterns rather than full sequences. On the subject of editing, many people might find just using the LEDs on the unit's front panel a bit impractical. Ironically, you'll have to use something like Hands On's Litebar light auditioning module to do it without a rig! Oh well.

Despite these points, the Lite Show gives good results with the minimum of fuss. Getting a complex sequence up and running takes no more knowledge than you already have of your sequencer. If you can write music on it, you can program a lighting sequence. This kind of flexibility and ease of use make the Lite Show ideal for MIDI players with a small lighting requirement. FM

Total control

The Lite Show would normally be driven by a MIDI sequencer, but there are plenty of other control possibilities available.

By setting it up with a MIDI switcher, you could also add a separate MIDI controller (something like Peavey's versatile PC-1600 controller, which was reviewed in *FM* 6) to control the lights on the fly, taking control away from the sequencer for special lighting effects. Bear in mind that you'd have to get a lighting engineer in to do this, but it could make for some interesting performance aspects rather than static patterns.

◆ For more spontaneous effects, connect Peavey's PC-1600 MIDI controller and use its buttons and faders to change groups of lights.

◆ PC-1600 MIDI controller, £329, Peavey
Tel: 0536 205520

Alternatively...

There's only one real alternative to the Lite Show and that's Hands On MIDI's Limelite. Although it's a little more complex in operation, the Limelite enables you to program the preset scenes in memory and call them up from program changes. The unit can be controlled from the front panel, which may be more useful for some people. The Lite Show, however, gives smoother fades, is easier to get to grips with and is a lot cheaper. On the other hand, the Limelite can handle slightly bigger rigs and has front-panel accessibility. It's up to you.

◆ Limelite, £450, Hands On MIDI
Tel: 0705 221162

BCK Lite Show

MIDI-to-light controller
£199.99 ◆ BCK Products, 136 Hornchurch Road, Hornchurch, Essex RM11 1DP
◆ Tel: 0708 448799

Verdict

Features

Ease of Use / Setting up

Quality of results

Value for money

An extremely accessible unit which provides a slick performance – a very useful unit for live musicians using MIDI sequencng.

FUTURE MUSIC RATING 89%

•ROLAND•AKAI•EMU•KORG•ENSONIQ•ALESIS•SONY•YAMAHA• PHONIC • ART •

•QUAD•TOA•SENNHEISER•LEXICON•TOA•ENSONIQ•DIGIDESIGN•AKG•BAYER•BOSS•KAWAI•ZOOM•KO

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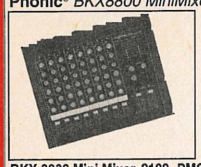

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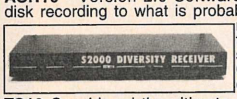

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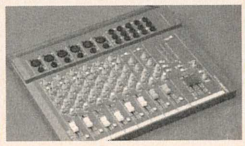

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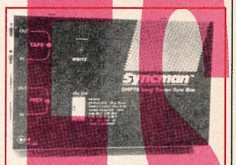

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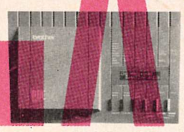

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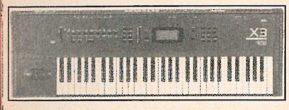

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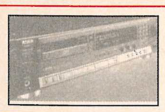

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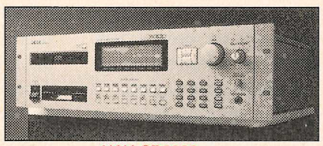

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Jewel cased

◆ Minus the keyboard, but still with all the synth and sample capabilities, the GEM S2R fits in a 3U rack-mount box.

GeneralMusic's S2R shrinks down the S2 keyboard synth into something small, perfectly formed and rack-mountable. Tim Oliver holds it up to the light.

TAKE A GEM S2 workstation, remove the keyboard, and what are you left with? Well, something that's potentially very good indeed. The S2R (R, of course, for rack-mount) is a neat, 3U-high black box with a clear, good-sized, blue LCD screen.

Inside, the box is a very powerful workhorse indeed: 32-note polyphony; 16-part multi-timbrality; more than 200 waveforms in 6Mb of ROM; 4Mb of RAM for imported samples, edited sounds and sequences; 16-track sequencer; and optional non-volatile RAM-disk (2Mb).

There are over 500 sounds in the ROM sound library, which are edited versions of the basic waveforms. The library can contain up 2,048 sounds at one time. And the whole system is supported by a 3.5-inch high-density floppy disk drive.

The controls are arranged logically, but there is a slight problem: because you tend to look down at the expander, the on-screen options and the function select switches are irritatingly out of alignment. It becomes quite wearing repeatedly hitting the wrong function select switch.

Sound sound

The S2R uses a combination of digitally sampled sounds and subtractive synthesis. The samples are all short, to save memory, but extended using GEM's 'multi-loop' technique. Eight segments of the sustain phase of the envelope are alternately looped to make a long, smooth, click-free sustain over which an envelope is superimposed to create a natural decay and release. Sounds have been multi-sampled and spread across the keyboard to make what GEM terms a 'waveform'. Waveforms can be played singly or combined in Dual-Oscillator mode, though this reduces the polyphony to 16 notes.

The sheer number of samples is impressive and most are clean and punchy, though the looping doesn't always stand up to scrutiny. What's more, GEM is providing more samples bit by bit to load into RAM.

Not only that, the S2R has a 'sample translator' – a cunning piece of techno-trickery that enables you to load up S1000 samples and programs, and ST and MS-DOS sound files for *Avalon, Sound Designer, Sample Vision* and Wave (.WAV). This could be a masterstroke, tapping into a huge reservoir of existing samples which can then be processed through the brilliant synthesizer section.

Most analogue synthesizers have four simple waveforms as building blocks (sine, square, triangle and sawtooth) and maybe a noise generator; the S2R has 208, plus any user samples in the 2Mb of assigned RAM. A good start.

Next, waveforms are optionally filtered through two digitally controlled filters (DCFs). Both are the same, with a roll-off of 12dB/octave. They can be combined to give a 24dB/octave roll-off or used on different parts of the frequency spectrum to create unusual harmonic effects.

There are five filter types: low-pass, high-pass, band-pass, parametric boost (which gives a peak around the cut-off frequency) and parametric cut (which gives a dip).

The filters are excellent; any changes are gradual and smooth with no stepping. Also, resonance (Q) can be added around the cut-off frequency. Both the cut-off and Q can be affected by varying MIDI key velocity, and the former also responds to aftertouch.

What's more, GEM has assigned MIDI controllers to the cut-off frequency, giving real-time, tempo-related filter changes which can be recorded in the internal sequencer or your ST, Mac or PC. The filters can then have envelopes applied, of which there are two; one for key on (attack, decay, sustain) and one for key off (release). Each can be drawn graphically and can have up to 10 segments, which gives amazing flexibility.

There is also filter-tracking, so filtering varies up and down the keyboard, plus envelopes and tracking for pitch, amplitude and, interestingly, pan; all with the same high standard of control.

Further MIDI control numbers have been assigned to the attack and release time of the amplitude envelope so you could, for example, have string stabs and slow, bowed strings from the same sound at different points in the song. Low-frequency oscillators (LFOs) can be applied to modulate pitch, filter and amplitude.

The synthesizer section is superb: it gives an immense degree of control and makes the S2R a very powerful machine indeed. Can the rest of the features live up to it?

Organ-isation

Edited sounds must be saved into the Sound Library, a vast archive in RAM of sounds edited from the waveforms plus the ROM presets. The S2R conforms to General MIDI so the sounds are roughly where you'd expect them. The library is divided into 16 'families' (piano, organ, bass, etc). Each family can contain eight 'groups' (pianoforte, electric piano, Rhodes, etc) and each group

Tech specs

Sound Generation
PCM, wavetables, multi-loop, crossfade multiwave and subtractive synthesis
6Mb internal ROM
2Mb internal sound RAM
6x18-bit digital-to-analogue converters
2 digital signal processors
32-note polyphony
16-part multi-timbrality
32 digital filters
S/N ratio: >96dB
Frequency response: 10Hz – 18kHz
Sampling rate: 41.7kHz

MIDI
32 MIDI channels
2 MIDI In, 2 MIDI Out, 2 MIDI Thru
MIDI merge

Memory
Microprocessor: Motorola MC68302 (running at 16MHz)
2Mb internal sample RAM
100 Performances, 10 Songs
Sound patch matrix

Sequencer
Tracks: 16
Resolution: 192 ppqn
Capacity: 250,000 events
MIDI file compatible

Disk Drive
3.5-inch HD, 1.62 Mb formatted

Audio Outputs
6 – stereo (l/r), 1-4
Headphone jack

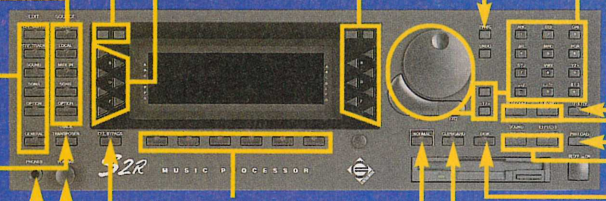
Sample translator

New to the S2R is the facility to read disks from other samplers, the sounds from which can then be processed through the internal digital filters, envelopes, and so on. Compatible sample files are S1000, *Avalon, Sound Designer, Sample Vision* and Wave (.WAV).

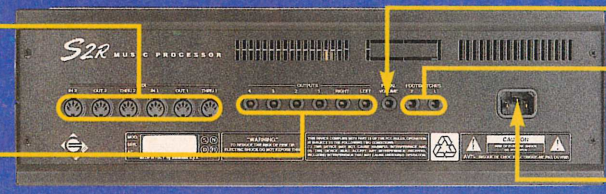
The S1000 library must be the largest in the world, opening the S2R up to a virtually unlimited supply of waveforms. The sample translator will also load S1000 programs, taking multi-samples while maintaining the original keyboard spread. As the S1000 processing is so poor, this facility is very appealling indeed.

There are only a couple of limitations: an S2R waveform can contain only 16 samples and any others are ignored. Also, S1000 samples can overlap and crossfade, which they cannot do in the S2R. If, however, like me, you're stingy and save all your S1000 samples on double-density disks formatted to high density, you're buggered: the S2R only recognizes high-density disks.

GEMstones and buttons



Behind the jewel case



can consist of up to 16 variations. These are accessed over MIDI by Extended Program Change messages – a combination of the normal Program Change message and Bank message (Control change #0).

It is well organised and very logical, but there is no non-volatile user patch memory, so all edits and the updated Sound Library are lost when the machine is powered down. Any work has to be saved to floppy or the optional RAM-disk. On power-up any disk in the drive is loaded automatically.

S-s-s-s-sixteen

The S2R is 16-part multi-timbral, the sounds arranged into a 16-part 'Performance' corresponding to the 16 MIDI channels. A lot of the ROM sounds use two waveforms so the reduced 16-note polyphony won't go very far. The performance must be saved into the temporary RAM otherwise it will be lost if you select another. It must also be saved to disk so that you still have it for another day.

There are ten performance combinations available per song and there are ten songs, all of which are accessible by Program Change messages on the System Common channel. If you want to communicate on all 16 MIDI channels, tough; you'll have to turn the System Common channel off.

Apart from multi-mode and singly, the sounds are supposed to play in layered and split modes. Accessed in the curious 'Local' source menu, sounds can be played by a local keyboard: but it's very confusing.

The whole of the source section is a bit of a turkey. Apart from the 'solo', which doesn't belong there, and the 'local', which doesn't exist, you've got 'MIDI in' where the parts are played by an external keyboard or sequencer and 'Song' where the parts are played by the internal sequencer. However, there is an internal MIDI merge, so both work in either mode, rendering the whole source section unnecessary.

Each part of the performance can be edited very flexibly. Apart from selecting the signal source, the destination can be either or both. You have control of volume, transposition, delay, output, pan and many more.

There are two digital signal processor (DSP) chips giving two banks of effects: one of reverbs and one of delay and modulation-based effects. All are stored in ROM in the Effects Library, with 24 of each kind which you can edit and save in the temporary RAM part of the library. Again, remember to store it on floppy before powering down.

The delays are very useful; you can edit delay times to tempo and control feedback, among other things. The reverbs are not so impressive. Though usable, especially the plate (and some reverb is better than none), they tend to be resonant and grainy, giving a cloudy picture rather than one of space.

The major drawback is effect level control; any parts with reverb all have to have the same amount of effect. The manual suggests using the four dry outputs connected to external reverb units. I second that, especially for crucial parts.

A brave and useful button is the effect bypass. Much of the 'Wow!' factor of recent synths stems from a wash of lush reverb; switch that reverb off and you find a very puny, naked sound standing embarrassed. Consequently, switching the effect off involves RSI of the index finger. GEM, being rightly confident in the quality of sound source, has made losing the effects easy.

They don't write 'em...

Once the waveforms have been edited and performances constructed, you can start to record a song on the 16-track on-board sequencer. The 16 tracks usually correspond to the 16 parts of the performance, but they don't have to (you could have the first four tracks playing the kit on MIDI channel 10).

The sequencer is very intuitive; you can find your way about it very quickly following prompts. Anyone used to a computer-based sequencer will be frustrated by its limitations, but it is a good introduction to the world of MIDI recording. For example, the 'microscope' edit function enables you can quantize performances. There are some large oversights that would greatly improve it: there is no looping apart from the whole song and no cue points or locators.

The sequencer does not really live up to the standard set by the synthesiser and the fact that the manual includes instruction in the use of *Cubase* rather speaks for itself.

But the S2R is certainly a powerful synth and pirating other samplers is an ingenious feature that will win it respect. The complexity and degree of control over processing are unbeatable, even though it does let itself down in other areas. So is size important? No, I really don't believe it is. FM

Alternatively...

The obvious other option is the S2 keyboard (£1,699), but the leading rack-mount workstation is the Korg 01R/W (£1,499), which seems to be proving very popular these days...
◆ Korg, tel: 081 427 5377

GEM S2R

Music processor
£1,649 ◆ Key Audio Systems, Unit D, Chelford Court, Chelmsford, Essex CM1 3AG
◆ Tel: 0245 344001 Fax: 0245 344002

Verdict

Features

Ease of Use / Setting up

Quality of results

Value for money

A very complex unit, with great digitally controlled analogue synthesis and the bonus of the superb sample-stealing capability.

FUTURE MUSIC RATING 82%

◆ Yamaha's EMT10 – great sounds from such a little mouth.

EMT10 facts

Polyphony	8 note
Multi-timbrality	Up to 2 way, bass plus one other sound
Sounds	12 different high-quality PCM multisamples
Sound variations	4 variation controllers on sample playback
Guide price	£100 – £150

That CD in full...

On this month's *FM* CD you'll find brief demos of the following:

1. Piano 1
2. Piano 2
3. Harpsichord
4. Guitar
5. Strings
6. Choir
7. Double bass

Yamaha's EMT10 sound module may not be the biggest thing on four rubber feet, but it comes with an incredible range of excellent sounds. Richard Wentk decides he wants two. At least.

Size isn't everything

OKAY, SO IT'S SMALL. In fact, by the standards of today's dreadnought workstations and tone modules, it's positively miniscule. But don't be fooled. Some of the sounds to be found inside this tiny box are excellent.

Let's backtrack a bit and look at how the EMT10 came to grace the face of a sample-playback-module starved world. In Japan, Yamaha isn't just known for musical instruments and motorbikes. It's known for everything: carpets, toilet bowls, three-piece suites, home organs.

Well-stacked organs

Home organs? The sad fact is that it was the bossa nova and cardigan set who first got their hands on this gem of a tone module. Somewhere in Yamaha's warped corporate mind it was decided that the EMT10 wasn't a musical instrument so much as an extension to a MIDI-equipped home organ, and so it was initially only sold in this country through Yamaha's home-organ dealership. In fact, it was part of a series of diminutive but powerful products which included a MIDI sequencer and a digital multi-effects unit. The idea was that you could stack these different products together to create a sort of MIDI-fied musical mini-tower. It's not known whether many users actually did this. What is known, however, is that it was only because a handful of eagle-eyed musos spotted the EMT10's noise-making potential that it eventually escaped out of its cha-cha organ ghetto and made its way into music technology land, where it's been thriving ever since.

Let's take a closer look at what's inside the EMT10. Technically speaking, it's an 8-note polyphonic PCM (pulse code modulation) sample-playback tone module. It's not multi-timbral, although you can create 'split' presets with a bass sound on part of the keyboard and any other sound on the rest. The module responds to program changes, Velocity and Sustain, but it doesn't respond to Pitch Bend, Modulation, Aftertouch or Master Volume – which is a let down, but not that hard to live with in practice. If you need more than eight notes – and for the amount of money you'll be shelling out for one unit you may as well get two – it's possible to set up one EMT10 so it responds only to odd or even notes, leaving another one to deal with the rest. This is good because it means you can then slightly detune the two units for a richer sound.

So much for the overview. Just why is the EMT10 so special? Put simply, it's the sounds. Some are absolutely stunning – the kind of sounds you might expect to find inside something that costs a whole lot more money. Not all are excellent – in fact a few are utter crap – but the ones that cut it are very, very good indeed. Given that the module can hardly be called expensive (it wasn't exactly extortionately priced even when it was first released), the EMT10 couldn't really fail to become a runaway success – and indeed it has, especially most recently on the second-hand market.

Mellow out

The basic sounds on the EMT10 can be modified using a combination of special buttons. These apply filtering and/or a different envelope, but often in creative and surprising ways.

Bright/Mellow Bright makes a sound sizzle, Mellow makes it dull and, well, mellow really. We're talking basic tone controls here in fact. The mellow harpsichord is particularly interesting. The sound is damped so it becomes like a 'stopped' harpsichord – a very authentic effect.

Fast/Slow Fast creates a percussive envelope, Slow makes it long and drawn out. Slow guitar is most effective, fading in smoothly in a Hank Marvinesque kind of way.

Sounds abound

Piano 1 An excellent bright rock or house-style piano. This is one sound to kill for.

Piano 2 A more mellow and warm new-age piano. Sounds a lot like Piano 1 with some of the treble turned down – probably exactly what it is.

E Piano 1 A binky-bonk DX7-type piano sound. It might be useful for some dance tracks but it's just too plinky to play.

E Piano 2 A warmer and less cutting sound. Playable, but still obviously a sample and not as musical as the real thing.

Harpsichord An excellent sound for the money. Bach would have loved it.

Guitar A truly superb nylon guitar sound. A fearsome weapon in the right hands – this sound can dissolve whole audiences into pure slush at a hundred yards.

Strings Dramatic, vaguely Mellotron-ish strings. These sound superb with a touch of reverb. A true prog rocker's delight, but perfect for any situation requiring halfway realistic strings.

Brass Oh dear. An outbreak of serious naffness here. This is certainly the worst sound to be found in this box and is – to be generous – a complete waste of space.

Choir A whole roomful of people yelling their lungs out inna musical stylee crammed behind one tiny button. Excellent.

Upright bass Instant Danny Thompson straight out of the box. Heaven.

Electric bass Useful, but not awesome. Doubles as a poor person's electric guitar if played a couple of ocatves too high.

Slap Bass P-funk until your fingers fall off.

This year's model

While this little box won't bring you the instant celebrity status of a Roland TR-808 or TB-303, it's just the thing if you want to get on with playing some music and need some responsive and musical sounds to do it with. Get two if you can – you'll have more notes and a richer sound to play with. Get the manual if possible as well – the panel controls are cryptic at best and you won't get far without some bits of paper telling you how to turn Omni mode off and set the MIDI channel. Finally, get the latest model available – the early ones have an annoying habit of switching back into Omni mode if they get an All Notes Off message.

While it may not be big on size or price, the EMT10 can take on some of the piano, guitar, choir and string sounds in the latest workstations and sample-playback synths and give them a serious run for their money. In fact, all told, it's a bit of a classic.

Price and availability

I bought my JX-3P just over six years ago for £350. Quite a bargain, seeing as the original asking price was £1,075. Even better news is that since 1987, the second-hand price has dropped to around £225-250.

There are plenty of JXs still around. The PG-200 programmers are a rarer bird, but you don't need one to get the best out of the synth. A few words of warning: at the rear of the JX-3P is a switch for selecting between the MIDI ports, the Programmer and the Memory Protect. If this is not set for MIDI, sure enough, MIDI reception ceases. So bang goes any TB-303/101-style tweaking of the PG-200 filter controls while your externally driven sequence bubbles through the synth.

Roland's JX-3P is now ten years old, but still has a lot to offer. Dave Robinson celebrates one of the earliest MIDI synths and checks out how well it's aged.

◆ Roland's JX-3P is best played on the horizontal, as it happens.

Three P sweet

PROGRAMMABLE, preset, polyphonic – that's what Roland embossed on the JX-3P analogue synth when it was launched back in 1983. But it could so easily have also been subtitled practical (it's crammed with useful analogue sounds), pretty (a charming red, green and blue flash) and priceless (once you've got one, you just won't want to let go of it).

The JX-3P was one of the very first MIDI synths. The scant spec gives this away – the JX can only receive MIDI Note, Pitch-bend, Hold and Program Change messages. Saving and loading patch info is only possible through the tape-memory outputs: no cartridge slot here, and certainly no System Exclusive dump magic. There are 32 RAM memories for creative types, and they have always proved enough for me.

Sounds like...

The preset sounds have their highs and lows. The strings are a little breeze-block when it comes to subtlety; there's a perky Hammond organ, a clear vibraphone and a passable flute. The brass is farty, the electric pianos are thin and the lead violin is a bland sawtooth squeak.

The JX excels when it comes to sounds that are wholly 'synthy'. This is because it has two fat oscillators that can be cross-modulated in two different ways to create distinctive metallic, shifting and distorted sounds. Listen to the Hard Sync and Sweeping Funk sound bytes on this month's *FM* CD for examples of these modulations. A switchable chorus further sweetens the voice of the JX, and it doesn't deplete your 6-note polyphony either.

The DCOs (digitally controlled oscillators) are more stable than yer everyday VCOs (voltage controlled oscillators). You get a small selection of waveforms, plus noise on the second DCO. There's one LFO (low frequency oscillator) control and one invertable pitch envelope modulation (ENV) control between the two oscillators. Tweaking the amount of ENV while cross-modulating produces no end of alien sirens and uncomfortable wails.

Where the synth's design falls down is the single envelope generator (EG) governing the amplifier, filter and pitch. Fortunately, there's a gate switch on the VCA (voltage controlled amplifier) so you can still get sharp, stabbing sounds with shifting filters and pitch, as long as you hold the keys down – listen to Flowstoned on the CD for... quite spikey, as sound byte JX-101P on the CD illustrates.

Easy edit does it

All controls, excepting the dedicated brilliance slider, are accessed via the edit section. The value of a certain parameter is denoted by a lit LED on the bank of 16 patch-change buttons. Move the edit slider, and the blip whizzes up and down the bank. How about that? An easy means of editing that is also mildly amusing.

> *"The JX excels when it comes to sounds that are wholly 'synthy'"*

Of course, if these first steps into digital-style editing were too much like future-shock for you back in 1983, there was always the PG-200 programmer. This sat on the right-hand side of the synth, covering Roland's helpful diagram of all the editing functions. Lack of a PG-200 never did me any harm though [*really?*]. So there.

There is a built-in step-time sequencer (hurrah!) with a measly 128-note capacity (boo!). It can only be synced externally with devices of around the same era that put out a trigger signal. My Boss DR-220, which gives a click every time you hit the rimshot, saw stalwart service driving simple, repetitive JX sequences. A Roland TR-606 or 808 could do the job just as easily.

Some JX-3Ps respond to MIDI data on all 16 channels (though not mine, for reasons I don't know). Apparently, there's a rather off-beat way of switching the machine to receive on MIDI Channel 1 only: with the synth switched off, plug a MIDI lead from the In port to the Out port. Now switch it on while holding down a handful of keys, and hey presto! MIDI-channel monogamy. Either that, or you'll be able to pick up Radio Moscow.

Unsung hero

The JX-3P never had the acclaim of bigger Roland analogue synths, or of analogue machines masquerading as digital ones (the αJuno range). All the same, it's worth picking up and digging into. Now, could someone offer *FM* a JX-8P for retro-dissection? Then we could speculate endlessly as to what all eight ps stand for. FM

Lopped off

The MKS-30 is the modular version of the JX-3P. It has more memories, no sequencer, on-screen editing, and, significantly, velocity sensitivity. Second-hand, I guess it should be worth about the same as the JX, if not a little more. So has anybody got one?

JX-3P on CD...

On this month's *FM* CD you'll find brief demos of the following:

1. Hard sync
2. JX-101P
3. Fifth People
4. Pulsar Bursts
5. Sweeping Funk
6. Flowstoned
7. Planetdreamer
8. Stunted Hero
9. Niceplinking

Technical specifications

Keyboard 5 octaves
Polyphony 6 notes
Memory 32 programmable RAM, 32 preset ROM
Effects chorus
Storage tape memory
Sequencer 128 steps, polyphonic, step-time entry only, writable slurs and rests; rate slider with no tempo scale at all. Doh!
Rear panel stereo outs, switchable (lo, mid, hi); headphone jack; hold pedal; sequencer trigger pedal

Beats and pieces

Have you come up with an idea for a top electronic song, but don't have any decent sounds for it? Maff Evans and Dave Robinson take a look at some sonic solutions.

SY85 – Ambient and Techno

Long-time readers of *Future Music* will already be aware that we really like the SY85. And why not? It's an extremely good workstation – especially when it comes to speed and ease of use in the editing department. However, there will always be people who stick to the presets and wouldn't get into the complexities of editing even if forced at gun-point.

Ambient and Techno is a floppy disk for just those people. Well, maybe that's a bit unfair. It does contain a load of preset sounds and performances, though, which can be loaded into the SY85 and played without having to touch an edit button – hear some of them on this month's *FM* CD.

Many of the sounds are, predictably, aimed at the dance market. There are some analogue-sounding basses, sweeping, gentle pads and even synth effects that aren't a million miles removed from 2Unlimited's *No Limit* (NoiseBras) and Gary Numan's *Are Friends Electric?* (Isabelle). Make of them what you will, but they're there anyway.

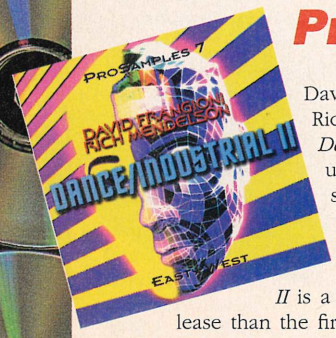
One of the most interesting sounds (if we have to pick one) is Idaphone, which sustains with a pulsing monotone bassline – great for adding a backbeat. Another worthy sound is Amphibia, which kicks off with a soft, filtered chord before fading into a pulsing synth note. Whack the mod wheel up and it turns into a wobbling, acid riff. Could be used for a techno intro on its own.

One strange thing about the disk is that there is no sequence data included. Seeing as the capability is there, it would have been nice to find a few techno patterns, or at least a demo song, but no. This is just a minor (and selfish) quibble, though, since *Ambient and Techno* is packed with some very nice sounds indeed. A fair few of them are neither ambient nor techno, but still good. Well worth investigating.

£33 ◆ Yamaha, Sherbourne Drive, Tilbrook, Milton Keynes MK7 8BL
◆ Tel: 0908 366700

Future Music Verdict

ProSamples 7 – Dance/Industrial II



David Frangioni and Rich Mendelson's first *Dance/Industrial* volume received a stonking 9/10 in *FM* 1. And here's the follow-up.

Dance /Industrial II is a more ambitious release than the first CD, coming as a double CD with an additional Atari ST disk containing MIDI files of all the loops featured on the two discs. If you're wondering what the point of this is, then it's probably worth pointing out that all the loops on the CDs are followed by all the individual samples used. What you can then do is sample each individual sound, load the MIDI files and edit them so you've got a loop that fits your requirements.

As far as the samples are concerned, the loops are much more funk and hip-hop based than those on the previous volume, although there are still quite a few industrial grooves. These are very good, with some great kicking beats to back up your songs.

However, the individual sounds raise a few points. The funky sections sound good, having all been taken from previous recordings. The industrial sounds are good enough, but some are repeated, as well as coming from a restricted range of sources. Anyone who has been producing this sort of music for some time will have many of the CDs featured, so all that's required are the films used for the 0special effects and you could duplicate the material on offer.

The selling point has to be the loops, but are they worth £60? Perhaps so to someone who has merely a fledgling sound archive, but more variety and originality are needed if volumes like this are going to sell to devotees of industrial.

£59.95 ◆ Time+Space, PO Box 306, Berkhamsted, Hertfordshire, HP4 3EP
◆ Tel: 0442 870681

Future Music Verdict

Keith LeBlanc's Kickin' Lunatic Beats

Keith LeBlanc was present at the birth of hip-hop – he played on Grandmaster Flash's *The Message*. Since then he has worked as a drummer/programmer for just about every name in pop, from James Brown to Nine Inch Nails.

When a musician with a track record like that makes a sample CD, you'd expect something rather spectacular, wouldn't you?

What you get here is around 90 extended loops, plus five tracks of single hits. Each of the loops starts with a fill, followed by (on average) about 50 seconds' worth of a particular groove. Each bar is subtly different from the next, so every long track is worth at least a half dozen variations on a pattern.

There are no problems with quantity – the CD is nearly 78 minutes long. Quality can't be faulted either – it's all lovingly reproduced in stereo. And someone's pumped up the EQ on the kick drum for you, too.

The problem is the variation between tracks. I counted around eight short tracks of just percussion (rather than a full drum kit). There's roughly an equal number that use effects to some extent, whether it's outrageous reverb or bizarre pitch-shifting. There's even a track to catch the unsuspecting – beware Bogus Beats, track 42! As for the remaining 70, the word 'samey' suits. Keith claims to have covered a wide range of styles, but you'll be choking on the number of snare/kick/hi-hat/crash-cymbal hip-hop patterns here. Most of it seems to have been recorded on the same kit too.

AMG has missed an opportunity to produce a real innovation in drum-sample CDs here. This is more le bland than LeBlanc.

£49.95 ◆ Advanced Media Group, PO Box 67, Farnham, Surrey GU9 8YR
◆ Tel: 0252 717333

Future Music Verdict

The Digital Village

230 High Street, Barnet, Hertfordshire, EN5 5TD Tel: 081-440-3440/9 Fax: 081-447-1129

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Whilst some stores have sent one of maybe even two members of staff to be trained by Ensoniq, every member of staff at the Digital Village has attended Ensoniq training, and excelled - ask to see our plaques! Add to this our knowledge of SCSI systems, hard disk recording and sample libraries and you'll soon realise that the Digital Village is the obvious place to go for a completely configured system based around an Ensoniq product and be sure that it is tailored to your precise needs.

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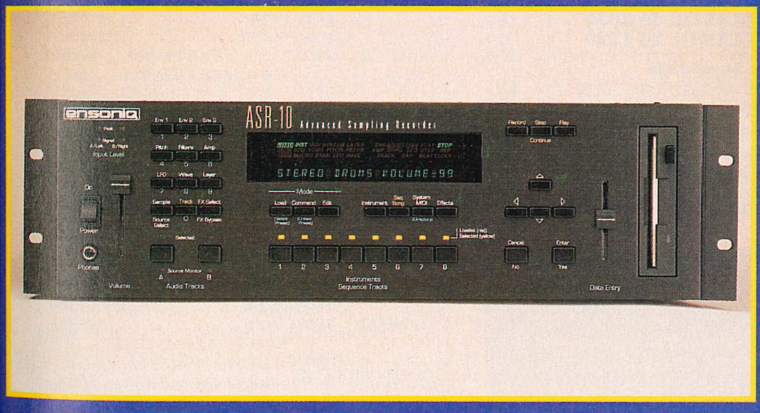

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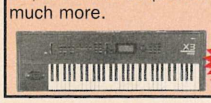

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Now, if you've read the last two *FM* Careers features about commerical music for TV, radio and film, you might be a little wary about the whole prospect of mere mortals getting into the biz. Everyone we spoke to seems to have had some kind of leg up on the road to success. However, lucky (as well as hard-working and talented) as these people have been, they all agree that you can make opportunities for yourself, even if you don't know someone who works in TV. They also agree that some kind of video showreel is essential to prove your worth: something tangible that you can tout round production houses; something to demonstrate that you are capable of putting music to video effectively; something to show the men in suits that you are the right person for the job.

So how do you put that showreel together? Just follow our simple guidelines and you'll realise it's well worth the effort.

1 Got all the gear?

You don't need the latest U-matic editing suite to get music to tape: if you win a contract, rest assured you'll be heading into a post-production studio to get that professional-quality sound required for the airwaves. But there's no denying that some serious hardware is essential at an early stage. Count on needing the following:

- Two NICAM video recorders. You're bound to have one of these if you're into films, so all you need is a good friend to lend you another for the weekend. The machines must have stereo audio inputs and outputs. I popped down to Curry's and discovered that all of the following had audio dub facilites: Panasonic NVHD 100; Mitsubishi HSM58; JVC HR-J1600EK; and Sony SLV-E7. NICAM VCRs don't tend to come in at anything less than 500 quid, incidentally.
- A computer running sequencing software capable of syncing to SMPTE.
- A SMPTE sync box. It's best if you use something that integrates with the software. For Steinberg's *Cubase* users, the obvious choice is Steinberg's Midex+ (£475); Emagic's *Notator* people should try Emagic's Unitor 2 (£299). JLCooper's PPS2 (£199) is also a widely acclaimed box of tricks. Your options with the Amiga, however, are more limited: Dr T's Phantom (£199) or Blue Ribbon's SyncPro (£189.95). There are no end of sync boxes cum interfaces for the PC and Macintosh – check the Buyers' guide in *FM* 15 for information.
- A video-audio mixer. You need one of material and master both to the video recorder you borrowed. Another trip to Curry's for a classy CamLink System 30 Sound Studio mixer (£190), perhaps. Alternatively, Tandy sells the cheaper CamLink models: prices start at about 30 quid for the MX800 mixer, rising to £80 for the VMX 2000. This presents you with separate mic, audio and music inputs (not sure what the difference between audio and music is, mind), video enhance and master level faders, and a bypass switch. It's probably the one to go for.
- Untold amounts of samplers, synths and modules. Well, just a couple of decent sound sources and an effects unit hooked up to your MIDI sequencer will do. A submixer will come in useful too, so that your sound is nicely balanced before it gets to the video-audio mixer.

2 Get it together

All rightey. Now you're ready for action. First, pick an advert, a section from a film or the opening titles of a quiz or chat show. Just make sure it's something bloody atrocious that you know can be improved upon. Record it on to your first video. Now, using the sequencer if necessary to drive the sync unit, 'black' that video tape by hooking the sync signal output to the audio dub input of the video recorder. Blacking is the name given to the process of preparing a tape with time code, in this case, SMPTE code.

If you bug production houses enough, they may provide you with an already 'blacked' VHS tape. Many agencies no longer have the budgets to support in-house musicians, so they'll quite happily co-operate with someone who phones up and says: "I can do this at home and it won't cost me anything, so I won't charge you unless you use it". With a bit of luck, not only will this tape have SMPTE code recorded on to it, but Burnt In Time Code, or BITC (pronounced bitsy), too. BITC is the visual time-code equivalent.

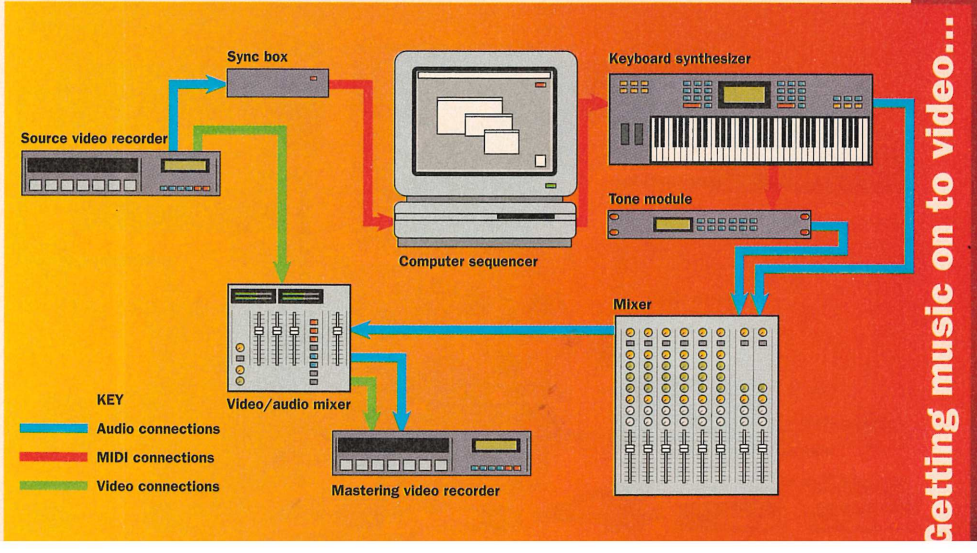
Time to get creative. First, you need to drive the sequencer with the SMPTE – video audio output to sync input. Familiarise yourself with the run of the footage as much as possible, making careful note of any points of significant action; this is called 'spotting'. Now do what you do best – compose something remarkable.

Once you're happy with your composition, it's time to master sound and vision to your mate's video. Follow the diagram below for how to set up your gear. Don't forget, you only want the video from your first machine because the audio will consist of ear-unfriendly SMPTE signals.

Contacts

For assorted bits of hardware:
Harman (Steinberg) 081 207 5050
Key Audio (Dr T's) 0245 344001
Meridian (Blue Ribbon) 081 543 3500
Sound Technology (JL Cooper, Emagic) 0462 480000
See this month's Buyers' guide too.

Useful reading:
As always, the industry bibles contain lists of production houses, studios, and, well, just about everybody you might need in your quest for success.
The White Book (£40 inc p&p) from Birdhurst Ltd, PO Box 55, Staines, Middx TX18 4UG, tel: 081 348 2332
Kemps International Music Book 1994 (£28 inc p&p) from Showcase Publications, 12 Felix Avenue, London N8 9TL, tel: 0784 464441



Charlotte rambling

◆ Charlotte Street's Matthew Faddy.

Matthew Faddy is the studio manager at Charlotte Street Studios. With the help of programmer Andy Coles he engineers all kinds of TV-related recordings – from adverts and voice-overs to full-blown incidental scores. The work is varied, as Matthew explains: "Sometimes a composer will come in with everything on disk. We'll just whack it into the Atari, load it up and start laying it down. They'll probably have a singer or a sax player too, and we don't really get that involved.

"Another client – we won't name names – books in at 10am, and at about quarter past he'll be phoning us up from his mobile saying, 'Oh, I'm running a bit late, lads. Can you knock us up a 30-second 120bpm drum track?' Then he'll turn up, spend the whole session on the phone, and we'll basically do it for him.

"We program sounds on the [Korg] Wavestation a lot," adds Andy. "The composer might say he wants a sound like 'Eeeoooweeeeooo', and we've got to work out how to do it, or give the composer a number of options."

If you'd rather work on the engineering side of media music, what advice can Matthew pass on? "I think the Gateway [sound-engineering] course is unnecessary. If we're looking for a tape op, we wouldn't look for someone who had done that. The biggest advantage you can have in this industry is to start young, come in fresh, without any experience and begin at the bottom.

"You don't get taught many of the important things on a course. You can get bizarre descriptions of the sounds composers want. For example, a 'woody' sound – what does that mean? A course won't teach you. You'll learn how to line up tape machines, but that can be a small part of the job. The only way to learn is in a studio."

Matthew says 20-year-olds who offer their services can't stick it for long. "It's not a very pleasant job – it's criminal the way tape operators are treated sometimes. But if you get a 16-year-old in, they've generally got a better attitude.

"I was a tape-op for two or three years. I'd be in here before the engineer started, and afterwards to set up for the session. My first job was just after a Christmas party: I had to sandpaper the floor, trying to get the fag burns out."

Matthew points out the diplomacy required in certain situations: "There's so much politics in advertising, and often you have to deal with very fussy clients. We did some stuff on Anchor butter a long time ago, the very first Anchor commercial. We spent two or three days working on a 'moo' sound that Malcolm Ironton from Crocodile Music had done. The clients weren't sure whether it was a happy cow or not – they had a board meeting, with all these suits discussing a cow."

Again, the first video recorder will drive the sequencer. If you're feeling brave, and you've got a camcorder-mixer like the VMX2000, you could add speech to your music where appropriate.

What other tips on assembling a showreel can those in the know pass on?

"Keep it as short as possible," advises Howard Goodall, *Blackadder* and *Red Dwarf* composer. "Producers want to see that you can write music for a scene, or can join two scenes together. They don't want to see that you can write a tune, because that will be taken as read."

> *"Producers want to see that you can write music for a scene or can join two scenes together"*

"Don't make the mistake of going for something that's really good already," warns Malcolm Ironton, the man behind the Anchor Butter commercial.

"Once you've put a showreel together, you've got to try to get into production houses, which is very difficult. Even companies which have been in the business a long time have problems getting in to see producers, so you've got to try and find one producer you can chat to and get to know, then eventually you might get one job. At least that's a start. And it always helps if you know somebody, of course."

If you feel this video stuff is just a little beyond your means, you could always go for an easy option, like Bath-based Organised Noise. "We made a cassette tape showreel," says band member Louie Nicastro. "It's just like a demo tape. If we get any feedback from that, then we'll go on to making a video." The contents of the demo are a half-dozen tracks representing a cross-section of Organised Noise's output. There's a funk theme, a jazzy combo TV theme, and a couple of children's TV themes. Two of these you can hear on last month's *FM* CD (tracks 2 and 3). "We wanted to show our versatility without having to cover too much ground. We managed to make the best of our limited MIDI set-up without falling into naff orchestral-style works."

The professional approach

So how is audio prepared for video in the commercial world? Down at Charlotte Street Studios in the centre of London – where music has been produced for countless commercials and TV series such as *Press Gang* and *Far Flung Floyd* – it's all a question of syncing.

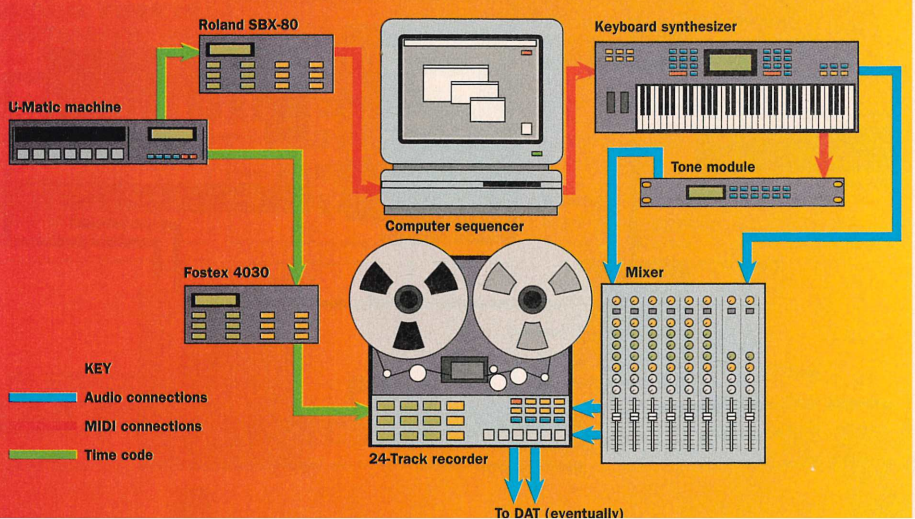
First the ad agency provides Matthew Faddy, the engineer, with a copy of the completed film on U-matic tape (a standard in this industry, but not suitable for broadcast). This has two types of time code printed on to it: EBU (European Broadcasting Union) time code, running at 25fps (frames per second), an audio code similar in nature to the American SMPTE (which runs at 30fps); and Burnt In Time Code, (BITC), which is the visual equivalent. The codes are exactly in sync with each other.

The U-matic player is synced to *Cubase* on the ST via an old Roland SBX-80 sync box. As the video is shuttled backwards and forwards, so the *Cubase* cursor will move accordingly – the U-matic is the 'master' and the ST is the 'slave'. Music and effects can now be sequenced so that they occur exactly when required on the film.

The next process is to record the finished audio to multi-track tape. Matthew uses an Otari MTR-90 24-track recorder. There is also time code printed on to track 24, and the machine is synced to the U-matic via a Fostex 4030 sync unit. On audio mixdown, therefore, the U-matic drives *Cubase* and the multi-track.

The audio quality of U-matic tape is worse than that of cassette, so the multi-track recording has to be mastered on to DAT. Charlotte Street use an Otari DTR-90. This has two stereo channels, plus a third on to which the analogue tape's time code can be transferred. The DAT can then be sent to a dubbing studio where it will be subject to further remixing with effects and voices, before being dumped to broadcast-quality Betacam SP tape.

...and how the pros do it



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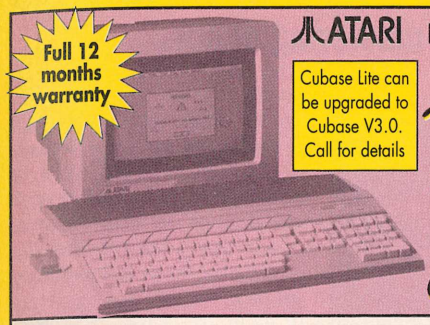

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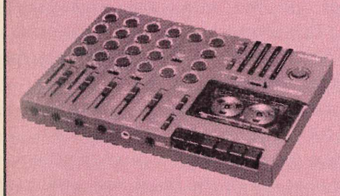

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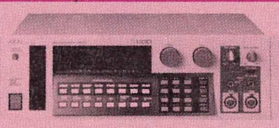

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◆ Two new digital-audio recording media slug it out for the domestic market, but are they a cost-effective alternative to DAT?

Format fatigue?

First there was DAT, now there is DCC and MiniDisc. Jon Bates discovers which is best for your digital mastering needs.

THE STORY SO FAR: life before the era of digital recording was simple. You either bought a vinyl record, a pre-recorded cassette, or you copied the recording on to a blank cassette. There was but one format for mastering records, the 1/4-inch tape. With the advancement of technology, and with it the dawn of the home studio, it became possible to master to cassette using high-quality equipment.

Digital sound hit the home in 1983 with Philips' Compact Disc, a playback-only medium. Its advantages were obvious: high-quality sound without background noise, no scratch or wear worries, instant access to any track, and simplicity itself to operate.

No sooner had CD been accepted than rumours of a superior digital-tape format began to circulate. Sony had developed the Digital Audio Tape (DAT) and it was put forward as a sound argument for not bothering with CD. Because of the machinations of rival corporations, DAT was a long time in arriving and destined for the professional market only – the early promise of pre-recorded DAT tapes of a far higher quality than CD never materialised. Besides its audio superiority, it was feared that unscrupulous third parties would copy the digital CD data directly to DAT tapes and thus generate perfect copies of the original (not possible now thanks to copy protection).

Even so, a DAT recording is preferable to the cassette and CD version. As with its technically superior Betamax video format, Sony had to bite a very hard bullet and tacitly admit another defeat in the battle for the domestic market. On a brighter note, DAT has become the standard mastering format for studios and has crept more and more into the home-studio market.

And now...

Why rock the boat even further by launching two completely new systems of digital recording? Only 40% of UK homes have a CD player and most ordinary punters will barely have heard of DAT. With a world recession still grinding on, one would have thought that now was not the time to sell two incompatible formats to a hard-pressed public. Perhaps that is why high-profile advertising and high-street promotion of Philips' Digital Compact Cassette (DCC) and Sony's MiniDisc (MD) have been avoided so far, although both have been commercially available for over a year.

> *"DAT spools and locates tracks much faster than DCC, but not as fast as MD"*

Philips is the pioneer behind DCC and Sony has developed MD. As far as we music enthusiasts are concerned, it is going to be a balance of quality, price and long-term future that will determine whether or not one of these machines sits next to our synths and mixing desks.

To give you the lowdown on each platform's worth, we took DCC and MD recorders to a studio and put them through identical tests. As well as other types of recording, we committed a CD track to each and played back through the same channels on the desk via a Quad 405 amplifier driving Yamaha NS10 speakers and Celestion County hi-fi speakers.

A selected group of music academics evaluated the results, not always knowing which medium the sound was from. As well as the models tested here, there are others available from both manufacturers.

Philips DCC 600

A DCC is outwardly a very similar animal to the analogue cassette. This is no accident because one of the attractions of the DCC system is that the machine will play back analogue cassettes, although, not surprisingly, it will not record in analogue. Both cassettes are the same size and double-sided, a factor which may be a disadvantage if you need to record a track of more than 45 minutes in length.

In Analogue mode the machine will search for the next track, looking for a gap. In Digital mode it reads a cue track which gives a read-out of the track and album title and you can search for any numbered track, repeat or define the order of play. In either mode, the tape doesn't need to be turned over because the machine selects the direction of playback and recording.

When it comes to straight recording from either CD, cassette or 16-track machine, the DCC seems completely faithful to the original without any noticeable colouration to the sound. There is no loss of frequencies at all and the immediacy of the multi-track recording is captured perfectly.

Analogue cassettes sound cleaner and fresher than they would on an above-average tape deck. Philips may have decided to put a high-quality analogue head and pre-amp section to attract the discerning cassette lover – the analogue side is equipped with both Dolby B and C noise reduction systems for complete compatibility. Digitally pre-recorded DCCs seem to have more warmth than the equivalent CD.

The DCC 600 is the same size as a rack-system cassette deck and comes with a very useful remote control that duplicates virtually every function. It has a backlit LCD with left and right volume meters just below the track information display. This includes, in digital mode, the time elapsed, time left, number of tracks and the track and album titles. Sadly, it's not possible to name your

Technically speaking

Sony MZ1

Sample rate	44.1kHz
Frequency response	20 to 20,000Hz
Wow and flutter	Not measurable
Inputs	Microphone, line and digital – mini-jack sockets
Outputs	Line and headphones – mini jack sockets
Recording time	74 mins stereo

Philips DCC 600

Sample rate	32, 44.1, 48kHz (records at 44.1kHz)
Freq response (digital)	20 to 20,000Hz
Freq response (analogue)	40 to 15,000Hz
Wow and flutter (analogue)	0.15%
Inputs	Line and digital – RCA phono type
Outputs	Line and digital – RCA phono type
Recording time	max 90 minutes stereo on two sides

recording, an Append function finds the end of the current tracks recorded and cues the tape ready to start recording – of course, you can record over any track and anywhere you like. Where DCC falls short is on the time it takes to find a track, even with a clever system of logical track searching. DAT, also a tape-based system, is faster.

There is a large catalogue of DCC prerecorded tapes available and each one costs the same as a CD. Blank DCCs cost about the same as their analogue equivalents and come in the same lengths: 30, 45, 60 and 90 minutes spread between two sides. Smaller DCC machines are just about to be launched and will include in-car systems and personal DCC machines of the Walkman variety. Also, the data-conversion system is to be upgraded to 18-bit to further improve the sound quality. At present, Philips is offering a £150 discount on the DCC 600 if you part-exchange your old cassette tape deck, which brings the price down to a manageable £350. The aim is that in a couple of years a DCC recorder will cost a maximum of £50 more than its analogue equivalent. There are two other manufacturers of DCC decks at present, Technics and Marantz.

◆ **Sony's MZ1 MiniDisc recorder comes across like a FloppyDisc-Man, but uses optical storage.**

Sony MZ1

The MZ1 is a DiscMan-sized portable machine that comes with a carrying case and shoulder strap. The MiniDisc itself looks like a small floppy disk (2.5 inches square) and slides into the machine in a similar manner. It can record up to 74 minutes of sound.

There's an LCD display surrounded by various function buttons and an alpha-numeric pad. It is rather heavier than one would expect, but most of the weight is taken up with the chunky, rechargeable battery. Surprisingly, you only get 75 minutes worth of playing and 60 minutes recording time from a fully charged battery, which is a serious drawback. The battery is recharged *in situ* using a transformer and takes about an hour and a half.

When it comes to audio testing, the playback from pre-recorded MiniDiscs (MDs) is very good. It compares well with CD and is superior to analogue tape, with no background noise and a full frequency response. Pre-recorded MDs, of which there is a substantial catalogue, cannot be recorded on at all and cost about the same as CD. Recordable MDs cost an uncompetitive £8.99 for 60 minutes and £10.99 for 74 minutes. When recording using sources such as CD, analogue cassette and reel-to-reel tape, the results are less than satisfactory.

It certainly records with depth and clarity across the whole frequency spectrum, but adds an unnatural and surreal brightness to the upper frequencies that, at times, is decidedly harsh and unpleasant. This is probably because of the data compression necessary to squeeze all the information on to the MiniDisc, which "extracts and encodes only those frequency components actually audible to the human ear". Sorry Sony, but it's adding more frequencies than

What's with these sampling rates?

Digital recorders and players are samplers with large-capacity, rapid-access storage. Sampling is the process of converting audible sound to digital data and, in effect, this slices the sound up thousands of times a second, each slice of which is preserved as data.

Because there's a gap between each slice, the playback device has to compensate by guessing what's missing. This 'quantization' is part of the maths that the processors undertake, and the result can be made more lifelike by re-processing the data – 'oversampling'. The more samples per second, the greater the accuracy of the sound.

CD and MiniDisc use a sample rate of 44.1kHz (that's 44,100 samples a second). DAT uses a standard rate of 48kHz, although this can be altered to 44.1kHz on many machines for direct data dumps to and from CD. DCC can record and play back digitally at three sample rates: 32, 44.1 and 48kHz. It detects the incoming sample rate automatically, but always records from an analogue source at 44.1kHz. Both machines tested are capable of recording line inputs and direct digital data but, because of sample-rate limitations, the MiniDisc can record digitally only from CD. At present, the DCC models cannot record microphones directly.

In operation it is no problem at all and you can play tracks in any random or preset order, search forwards and backwards for any point in the track, repeat tracks and name your own tracks; it automatically adds the time and date of recording. Like CD, the access time for tracks is minimal.

Given that this model is clearly meant as a Walkman substitute, it is too expensive. In this portable guise it is unlikely to be part of a home studio, although there are different versions of MD recorders available both for the car and home, the latter using more sensible plugs and sockets.

In conclusion

A spokesman for Philips was at pains to point out that the company does not really consider it to be 'format wars'. MiniDisc is designed for one purpose and DCC for another, which is another way of saying that Philips feels its system to be superior and that comparisons are unfair.

DCC looks set to hit the home market and succeed thanks to its compatibility with the long-established analogue cassette and its superb recording quality; more than suitable for the home studio. The future of MiniDisc is less certain. As a medium it has much better long-term prospects, given the extensive developments promised in optical-disk technology and links with computers.

However, Sony needs to address the problem of producing a result that is satisfactory to punters' ears before it can become a serious contender in the audio market. Another consideration is the deterioration of a recording if it is stored for some time. DCC uses the same tape as VHS videos, which has a good track record. MD has yet to prove itself in this area.

Neither of the two media at present are better than DAT, which has a technically superior sampling rate and storage format, and is well established. DCC may equal it the future with 18-bit sound conversion. DAT spools and locates tracks much faster than DCC but not as fast as MD. Cost-wise, DAT will almost certainly remain more expensive.

To sum up, while MiniDisc may have great possibilities, it is presently not a serious contender for studio use. DCC is a more worthy contender, and it's compatible with analogue recording technology as well. FM

◆ **DCC 600, £499. Philips, Consumer Help Desk, Consumer Div, City Hse, 420-430 London Road, Croydon CR9 3QR**
◆ **MZ1, £499.99. Sony UK, Unit 1, Causeway Estate, Lovett Road, Staines, Middlesex. Tel: 0784 467284**

◆ **Imagine a CD player into which you drop recordable cassettes – analogue or digital – rather than silver frisbees. That pretty much sums up the decidedly domestic-looking Philips DCC 600.**

Alternatively...

The obvious alternative to DCC and MD is DAT, which is well established but more expensive, with prices starting at about £450 for a Sony DTC 690.

If you need to edit master tapes then there's a problem with digital audio tape – you can't cut and splice it. A Revox B77 1/4-inch magnetic tape deck costs £1,000 second-hand, while an A77 comes in at about £350 second-hand. A near-equivalent-quality analogue cassette deck would cost about the same. You could use direct-to-hard-disk mastering which is quite expensive, typically upwards of £2,000 depending on what computer and hard drive you already have. But you will still end up transferring the results to some sort of portable storage medium like tape.

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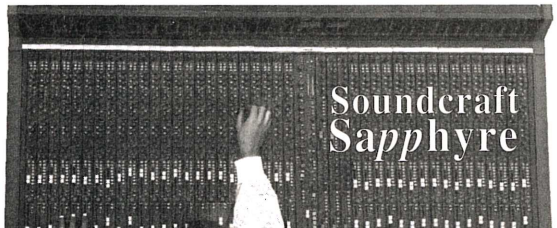

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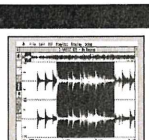

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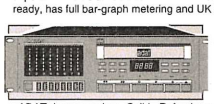

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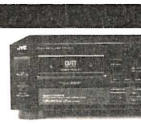

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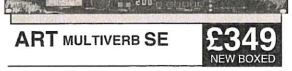

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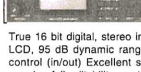

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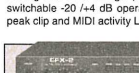

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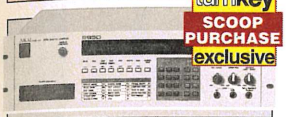

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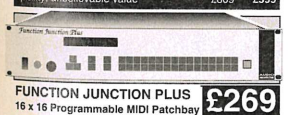

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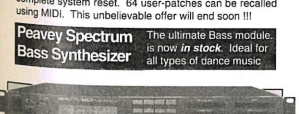

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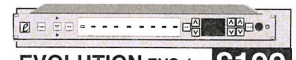

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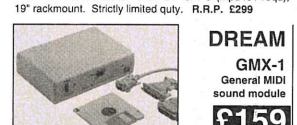

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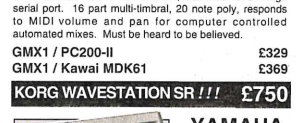

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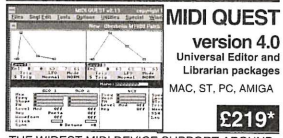

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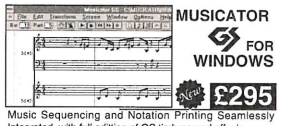

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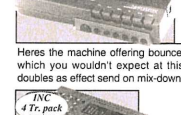

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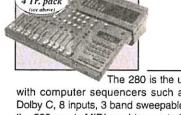

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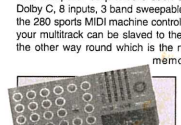

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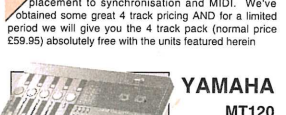

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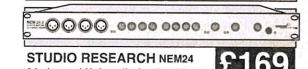

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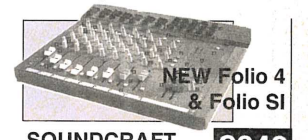

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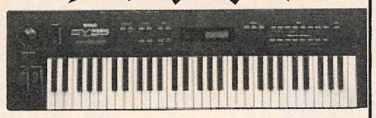

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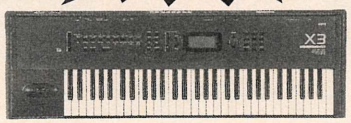

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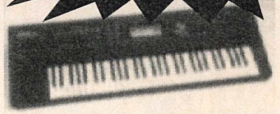

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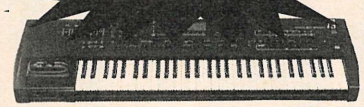

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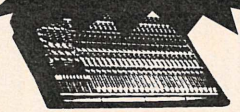

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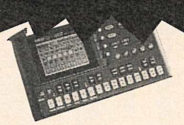

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"Together on one album..."

Maff Evans gets the low-down on an oft-overlooked means of musical money-making – releasing and selling your own specialist compilation CDs.

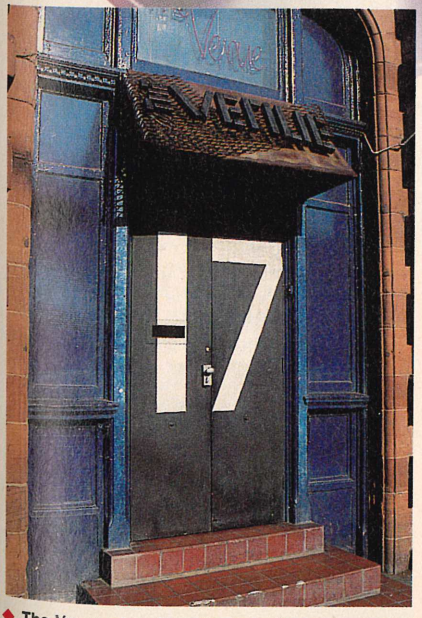
NO-ONE CAN HELP but have noticed all the ads on TV pushing the latest compilations of 'dance classics' (even though many of them seem to have the same tracks), which proves the point that specialist compilations have a definite place in the market. Cottoning on to a particular scene and compiling an album with loads of bands in that style is obviously a pretty lucrative area, but how do you actually go about it?

To find out more, Maff Evans travelled to Manchester to talk to Paul Green, who is putting together a compilation CD on the specifically formed Cyberwerks label. The compilation is a spin-off from the Cyberwerks club, a weekly occurrence at Manchester club, the Venue, and features tracks from a number of unsigned industrial-techno bands. Although the Cyberwerks release is very much based in the industrial scene, the ethics and methods behind producing the CD are relevant to any specialist area, so we got Paul to give us his practical advice.

On the right track

To begin with, there are a number of stages that need to be tackled before a compilation album can be released.

"First, realistically, I think you have to sort out the type of sound you want the CD to have," explains Paul. "In this case it's a mix of electronic and industrial bands. You need to get enough bands that you think are going to look good on the CD. Quite often you'll get to hear about groups that do things in the scene – in papers like *NME, Melody Maker,* and *Future Music,* of course – but are unsigned. You usually give them a ring and say 'Look, you're not signed yet are you? Would you be interested in going on a compilation?' The very fact that you've contacted them makes them think you've made an effort. Most people respect that. Keep your ear to the ground and approach bands. There's no point in approaching big names because they'll want a lot of money."



◆ The Venue club, Manchester – the Cyberwerks night there inspired Ground Zero's Ged Denton to get involved with the Cyberwerks compilation.

"So we got all the bands together," he continues. "Then we decided to approach certain labels by sending out promotional cassettes. As it turned out, the main one, Catalina [an industrial label based in Los Angeles] said 'Yes, we want to do something'."

Catalina was just one label that Paul aimed at when plugging the album, but all the companies contacted were main players in the industrial field.

"You've got to aim at your target market," stresses Paul. "My aim became obvious, because there is a certain industrial scene – even in England. You get to know what bands are termed industrial or not and you find their labels and the organisations working within that. I would imagine it's the same for dance. If you're into rave or techno then it's exactly the same situation. The same goes for rock. Anyone who's into that type of music will know the people to contact, so just target those people."

Gaining interest from labels and distributors is a major hurdle in getting your compilation released. Having to deal with record company personnel and getting them interested in the project takes a lot of work. The situation is quite different when plugging a compilation as opposed to a band demo, but there is still a right way and a wrong way of going about it, as Paul explains.

"The difference is that a compilation theoretically has more potential sales. Even with bands that aren't that well known, if you get the fan base of ten bands you've instantly got ten times more buyers than for just one band. You've also got more of a selling point in that the bands will put their best track on the CD."

◆ Paul Green signs another industrial act for the Cyberwerks compilation – this time it's a large, green, industrial-looking thing that goes clank.

Of good repute

One thing that definitely helps in selling an idea to a record label is getting yourself a reputation. Companies will always look favourably on someone they know is likely to be a good investment rather than a fly-by-night who'll land them with a bodged product then disappear.

"The key is name recognition," says Paul. "You've got to get out there. You've got to gig a lot and – most importantly – get your tapes out. You can't sit on your arse and hope they come to you because they never will. They might do, but you're *very* lucky if they do. What you should do is try to get a showcase together. Get all the bands ▷▷

Featured artist

If you're going to put together a compilation album, there's no point in just slinging together any old stuff that comes your way – it has to be quality material. To give you an idea of the standards you have to go for (as well as giving a taste of the stuff on the Cyberwerks album), we've included tracks by Mark 13 and Ground Zero on this month's *FM* CD. We spoke to Ged Denton, the song writer behind Ground Zero, about how he got involved with the project.

"It started with ads at the club [Cyberwerks night at Manchester's Venue club]," begins Ged. "So I had a word with Paul, the Venue's manager. He put me in touch with Paul Green who put us on to do a few gigs and it went from there."

Ged got into the industrial scene in 1988: "I was blind drunk one night, stuck the telly on and watched one of those crappy late-night music programmes," he explains. "They had Nitzer Ebb on doing *Control I'm Here,* so I rushed out and bought it the next day. From then on I just got more involved and started listening to Die Krupps, Frontline Assembly and Front 242."

This interest in the scene prompted him to attend the Cyberwerks nights at the Venue, where he met Paul Green. "He showed a lot of interest in us," Ged points out. "So he asked us to play when we approached him. He was very enthusiastic."

Getting your material on a specialist compilation is a good way of promoting yourself within the right market. Here's Ged's advice on getting involved with this type of project. "It's difficult," he warns. "But I have to say that we were lucky. You have to find contacts in the particular scene, which involves talking to a lot of people – I'll talk to anyone, so I was alright. Then you have to try and get yourself a gig to get people behind you and you can take it from there."

This is obviously a starting point for the band, so what would Ged like to see happening in Ground Zero's future? "I'd like to draw enthusiasm to the scene as a whole," he says, showing his great interest in pushing industrial music. "Obviously it would be nice to get signed as well – so we can do some decent studio sessions instead of overnight rush-jobs."

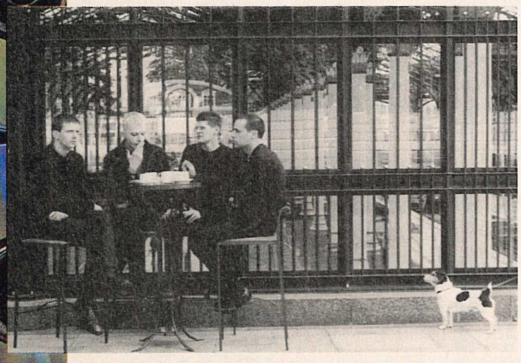
you want to show off, hire a small venue and get someone to promote it. Then invite everybody who's anybody – from the record companies to the people in the shops. How many actually turn up is debatable. Out of 100 you'll probably get about ten, but one of that ten could be a very important person."

A bit of a looker

Even though you hear a lot of people involved in music saying that it doesn't matter how your tape is packaged and that it's the music on it that counts, getting together a slick-looking product most certainly helps to get you noticed. Think about it; a record label receives stacks of tapes in plain-looking cases and the one that sticks out will be the one in the professional-looking wrapper. Paul agrees with this particular philosophy wholeheartedly.

"I can't emphasise how important good packaging is. If you've got good packaging and good music going hand in hand then you're laughing."

Paul also stresses the importance of chasing contacts to try and drum up interest.



◆ **The excellent Code have a remix from their *Area 51* EP appearing on the Cyberwerks compilation – a good break for a worthy band.**

"The most important tip is that you've got to be very persistent. If they say they're going to ring you back, the chances are that they won't – just because they're very busy. They take maybe 100 calls in a day and you're just one of them. They can't call everyone back, so you just have to keep ringing them." It could cause people to get a bit aggressive, but not keeping in touch can be a major mistake if you want people to stay interested in your ideas.

"If you're going to do that," continues Paul, "you *must* be ultra polite. You can't say, 'Well, why didn't you ring me back?' as though they owe you something. You've *got* to be polite to them. Eventually they'll give in, unless they say, 'Sorry, we're just not interested.' People will quite often say, 'Please send me a tape – I'll listen to it.' They *will* listen to it, but it may take a month. So keep going, that's the key – persistence and politeness. Also, I'd advise people to use the phone a lot. Don't write letters, because letters get thrown in the bin and into filing cabinets that don't exist. On the phone they can't ignore you."

One point that has to be addressed is that of finance. This can be the trickiest area, and where the most risk is involved.

"There are three ways to look at it," says Paul, pointing out the options available. "One way is to fund it yourself – put all the money up and hope it sells. I can name a few that have done that and done very badly. You can get your arse slapped if you put your own money in and no-one wants it because you didn't do your market research.

"Another option is to get a big distributor like APT or Cargo [two major industrial music distributors] to like the product. If they like it there's a good chance of them pressing it up for you, although they will want an extra 10% or so. You don't get as much control, but then you don't put money in. The thing with a company like Cargo is that it knows best where to sell and where not to sell, but as far as control over what goes on the CD, that should be yours.

"The other option is for the company to buy the compilation, press it up and just leave you to manage it. Personally, unless you've got a lot of money, I advise you to go for getting somebody else to press it up."

Paul also urges people to be careful about getting investment into a project: "One thing I must say is don't get a loan from a bank, because the interest rates are diabolical. If you can get backing, try to get it from a private investor who believes in what you're doing – a private investor or a bands, so the agreement is finalised with him. The royalty is an integral part of the deal, so all areas of that would have to be discussed with whoever puts it together."

Paul points out some further differences that can occur when working out where the money goes: "For this one, because the bands are unsigned, then we'll decide on an even royalty split. But for signed bands we'd first find out if the track is exclusive or a remix.

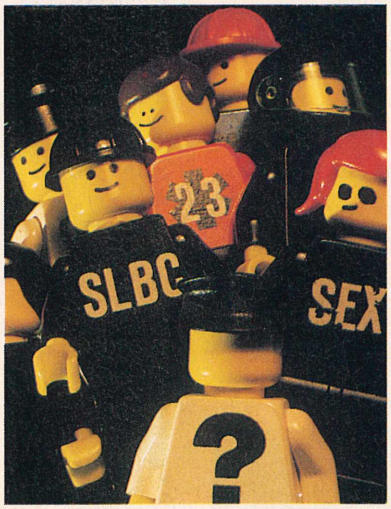
"If there's any studio finance to be done, we'd cover that. Then it's either an up-front payment for the track or a royalty as a percentage of the dealer price. It can be a combination of the two, with some of the money being paid as an advance against royalties."

Mike also notes that this situation can be different: "If you've got signed bands, then it depends on the leverage that they give you on a compilation as to the percentage they receive."

No matter what agreement you have, it's important to organise the royalty payments well in advance, otherwise you could land yourself in a lot of trouble.

As far as getting the actual material together, this takes some very careful organising and it depends on where the funding is coming from when figuring out who should foot the bill.

"If it's a compilation that you're funding yourself, then it's not unreasonable to ask the bands to finance the studio time. If you've got major interest, then it's not unreasonable to ask the label to put money into the tracks."



◆ **SLBC, another Cyberwerks catch, couldn't make it to the photoshoot. About time they went to another body-doubles agency, really.**

All this information sounds complicated, but it gets even more complex if you actually start escalating the label into a fully fledged business. At the level of something like Cyberwerks, it breaks down into the stages we've mentioned: define the idea of the project, compile a collection of bands and tracks, sort out a demo package, target your market, then get on the blower and hassle the hell out of anyone you think is potentially interested in releasing the compilation. It's very hard work, but a lucrative music-biz career could be on the horizon.

Paul's aims confirm this, since he is pushing to combine new talent on future Cyberwerks volumes with established industrial acts. A lot of work, but it'll be worth it. FM

◆ *The first Cyberwerks compilation should be out through Catalina by the time you read this* FM.

Money matters

An integral part of getting any compilation out is administering the royalties. The procedure can vary greatly, depending on the licensing of the album and the bands featured. Mike Smith from Catalina, the label distributing the Cyberwerks compilation, elaborates.

"Normally, it's done on a *pro rata* basis, depending on the timing of the tracks. What you do is take the total playing time and divide it by the number of bands, but it can vary." Mike goes on to say that the actual percentage can vary, but expect anything between 8.5% and 15% of retail, depending on the agreement reached (and the pulling power of the particular band).

As far as the actual administration is concerned, that depends on who has control over the compilation. "Basically, whoever puts the compilation together deals with the bands," explains Mike. "If we're doing it, then we'd organise paying the bands. For this case, Paul is basically the label so he deals with paying the

Get the 'Werks

If you'd like to get hold of this collection of industrial-techno sounds without paying (cheapskates), then you're in luck. We've got ten copies of Cyberwerks volume one to give away. All you have to do is answer this question...

What is the only way to kill a Cyberman?

Stick the answer on a postcard and send it to Cybercompo, *Future Music*, 30 Monmouth Street, Bath BA1 2DL. Make sure your entries get to us by 28 February 1994, otherwise we'll throw them in the bin. All the usual rules apply and that, so no moaning.

Cyber-contact

If you are an industrial-techno artist and are interested in being considered for future volumes of Cyberwerks, then get together a quality demo (taking all the advice into account) and send it to:

Cyberwerks
PO Box 108
South District Office
Manchester
M20 0AU

competition

Roadies, eh? You spend thousands on high-tech kit, then some burly sod chucks it down the stairs. Get your gear protected and enter our Kit Kase competition.

◆ Despite strenuous effort, even *FM*'s roady, Algernon, couldn't trash the contents of these Kit Kases. And yes, he blubbed...

Win! £1,000 worth of flightcases

Those lovely people at Autopia Terakat Accessories have a mission. That mission is to protect your gear from the inevitable abuse it gets when you're out gigging. As such, ATA has given *FM* two flightcases – one for a keyboard and one for rackmounting widgets – worth £1,000. And it's our job to help you win them.

If you want to tour and get out there and prove yourselves on stage, win these two Kit Kases and there'll be no excuse to stay at home. You'll be able to stuff your gear into these aluminium-trimmed, steel-handled, GRP-finished prophylactic boxes and save it from stage fright.

Just write your answers to the questions below on the back of a postcard or sealed envelope and send them to Kit Kase Compo, *Future Music*, 30 Monmouth Street, Bath, Avon BA1 2DL. The closing date for this competition is 28 February, 1994.

The rules

1. No employees or relatives of employees of Autopia Terakat Accessories or Future Publishing may enter this competition.
2. Multiple entries are way out of order.
3. The editor's decision is final.
4. No offence to roadies is meant or implied by any of the remarks in this article.

The questions

1. Name the actor who played Finlay in *Dr Finlay's Casebook*.
2. In what year was the first successful powered flight made?
3. How far apart would the mounting brackets be in a flightcase designed to contain rackmount modules?

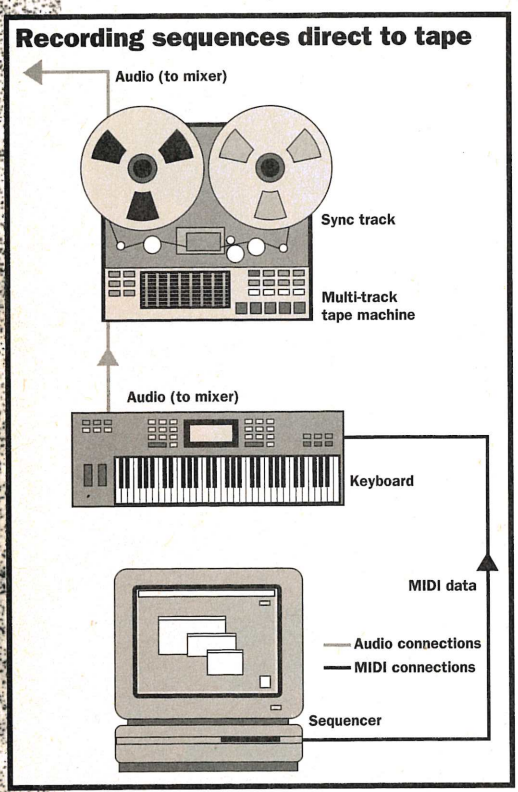
For more information on Kit Kases, and a quote on flightcases for your own gear, contact: **Kit Kases, Autopia Terakat Accessories, Units 32-37, Court Road Industrial Estate, Cwmbran, Gwent NP44 3AS**

MIDI has inspired a whole new way of creating music, and nowhere is this more apparent than when you're in the studio. Tim Tucker runs you through the basics of how to make the most of MIDI at this stage in the game.

MIDI in the studio

MIDI HAS PERMEATED all areas of modern music-making, from stage work to film soundtracks, but by far the most significant contribution that MIDI has made is in the studio. Ever since the advent of multi-track recording, the recording studio has been a place where musicians can experiment with new ideas and concepts and work on aspects of their compositions over which they previously had no control. MIDI has carried on this process even further, by giving musicians a far more flexible studio environment.

In this article, we're going to look at how MIDI can effectively be integrated into a traditional recording studio. This is intended to aid musicians who have grasped the concepts of the studio itself, but haven't taken the step into the world of MIDI yet. It is necessary, therefore, to go over some of the ground already covered in previous What's MIDI? articles, but this time with reference purely to its relevance to the studio.



What you'll need

The first thing to be sure of is what kind of equipment you'll need to get hold of in order to bring MIDI into your normal working environment. This is where most misconceptions arise, because you can benefit a lot from MIDI with the bare minimum of equipment.

In fact, you may already have some MIDI-endowed instruments in your studio – drum machines, keyboard synthesisers, samplers and even effects processors all sport the ubiquitous MIDI ports these days. However, to actually use MIDI effectively the most essential piece of equipment is a sequencer. Any studio which uses MIDI will have a sequencer, and in many cases it is actually the brains of the operation.

There are two types of MIDI sequencer – hardware and software. A hardware sequencer is like a drum machine – it's a musical instrument whose function is to sequence. The more common form, however, is the software sequencer. This still requires hardware, in the form of a host computer to run the software, but is much more flexible, since the computer itself can turn to many other tasks and the software can be updated or replaced by something better.

Software sequencers are much easier to use, too, mainly because the computer's large monitor screen can be used for friendly, accessible graphic displays, and also because the control system of keyboard and mouse is much simpler.

Why sequencers?

So what does a sequencer actually do? Well, a sequencer is the MIDI equivalent of a tape recorder. The difference is that the sequencer records MIDI data, not audio.

In the case of musical notes, it doesn't actually record the sounds coming out of a MIDI keyboard, but the information which triggers the particular notes in the first place. Once recorded, the information can be played back to the instrument from which it was recorded, and the performance will be recreated, just like any other recording.

It's clear, then, that the most basic requirements for using MIDI in the studio include a sequencer and a MIDI-equipped keyboard synthesiser. A multi-timbral synth (a synth which can play more than one instrument at a time; in other words, a synth which behaves like more than one synth) is the best option, and with just these two pieces of kit you can actually create music as complex, or more so, than that made on a standard audio multi-track recording.

The advantages of creating music with sequencers are manifold. Perhaps the most

How multi-track MIDI works

MIDI note information consists of the pitch of the note, and its velocity (in other words, how hard the key was struck). It is also assigned a MIDI channel number, which enables the recording of MIDI data to be analogous to a multi-track tape recorder.

There are 16 MIDI channels, and each one can be assigned to a different musical instrument: so, for example, channel 2 could be a bass part, and channel 3 a piano. Notes recorded into a sequencer retain the MIDI channel number, of course, and therefore up to 16 different musical parts can be recorded into the sequencer, each on its own MIDI channel.

The analogy of multi-track tape recorders is such a good one that most sequencers organise their operation in exactly the same way that a tape recorder does: on-screen buttons enable you to Play, Rewind, Fast-forward and Record your music, and the storage of data is divided into tracks, just like the tape on multi-track tape recorders. In practice, however, the tracks of a sequencer behave differently.

Although it might seem sensible to have tracks corresponding to the MIDI channel number of the data they contain (such as notes on MIDI channel 1 recorded to track 1, MIDI channel 2 to track 2 and so on), this is not always the best way of working. Quite often you'll start by recording the drum part (which is usually set to MIDI channel 10), which will mean that track 1 contains data on MIDI channel 10.

You can also have more than one channel on each track – you might have the bass and piano parts (on MIDI channels 2 and 3, say) recorded to track 1, in order to keep them together or to conserve tracks in your sequencer.

important, however, is the fact that musical information can be edited in a way that is just not possible on a tape recorder.

For example, say you record a piano part and you play a wrong note – if you were recording it to tape you'd have to play the whole part again, quite often from the beginning of the song. On a sequencer, however, this is not necessary, because all you need do is change the wrong note into the correct one. This is usually a very quick process, which speeds up your recording time no end and also enables you to quickly move on to the other parts of your arrangement.

"Even if you don't have a studio, MIDI can save a fortune in studio costs"

Also, you have complete freedom to play around with the sounds produced by the keyboard. For example, it might occur to you that the piano part you recorded would sound better with an electric piano sound. Rather than record the whole part again with the new sound, all you need to do is change the sound assigned to the MIDI channel on your synth from a piano sound to an electric piano sound.

Sequencer in the studio

The most basic way to use the sequencer and multi-timbral synth in the studio is to record all your musical parts (including drums, because most multi-timbral synths have built-in drum sounds) on the sequencer, then record the lot to tape. You can then add acoustic instruments, (guitar, saxophone, percussion and vocals) by recording on to your multi-track in the usual way.

This is all very fine and good, and quite often an ideal way of working, but as soon as you record the sequenced material to tape, you take away its flexibility. No more can you change sounds at will or alter chord voicings, and it becomes far more difficult to mix levels (alter the relative volumes of the separate parts).

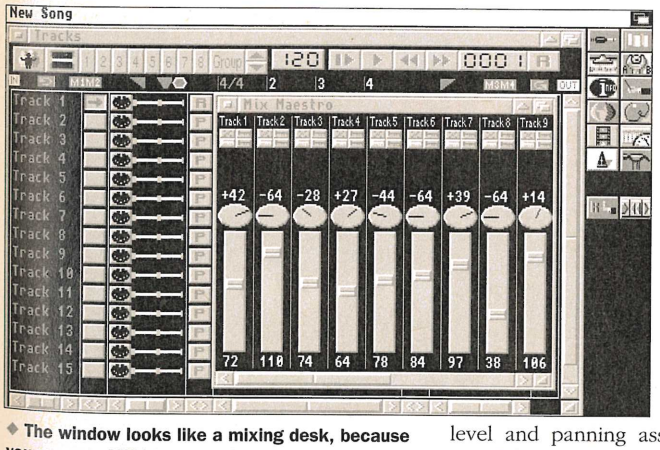
For this reason, sequencers are often run in sync with the multi-track, so that the two run independently but simultaneously. For this you need a synchronisation device, the most reliable of which is a SMPTE box. This is a sort of intermediary between the multi-track tape recorder and the sequencer. Because it can speak both their languages, it can ensure that both are playing at the same times as each other, and that they're both in the same place at any given time. In fact, the tape recorder becomes the master of the whole operation, and the SMPTE box then instructs the sequencer to follow along at the same time.

This idea of synchronisation has enormous potential: you can record your sequencer parts and have them play along with vocals, guitar and so on, without ever recording them on the same tape.

The most obvious advantage is in the increase of the number of tracks this offers you. Say you have an 8-track tape recorder; all the keyboard parts would usually take up, say, four of those, leaving you only another four to record the rest of your non-sequenced music. However, using the synchroniser, the sequencer parts remain on the sequencer, leaving all eight tape tracks free for your other parts.

Mixing it up

This is not where the flexibility of MIDI ends, however. MIDI is capable of much more besides recording and playing back notes. You can also record many other types of MIDI data, including the pan and volume controls of a particular instrument. This enables you to record and edit all the parameters that are essential for a basic mix, and even create fade-outs and other effects. Because they are in the sequencer, each instrument will play back with the right level and panning assignments every time you play the song. If you've worked in a studio you'll know that altering these kind of controls is essential to a satisfactory mix. MIDI's ability to record these parameters means that you can set up the mix in advance. Of course, all the parts you record on tape will still need hands-on mixing, but it drastically reduces your workload.



◆ **The window looks like a mixing desk, because you can use MIDI to control pans and fades.**

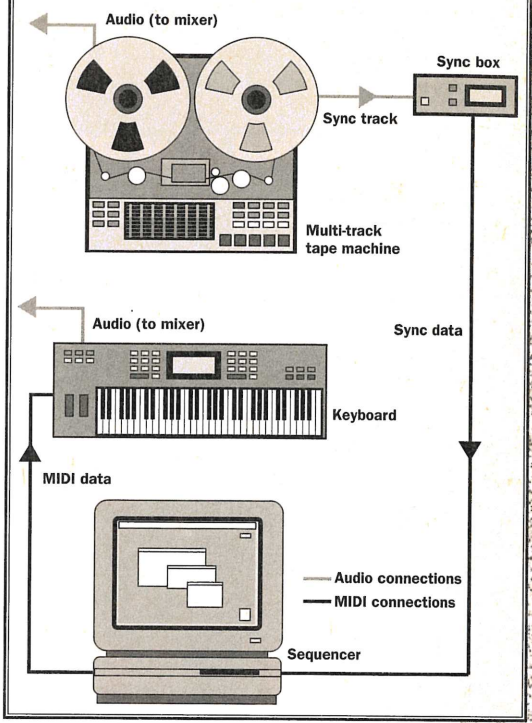
If you haven't tooled your studio up with MIDI equipment yet, you should be thinking seriously about it by now. The advantages are enormous, and you'll find plenty more when you actually get using it.

Even if you haven't got a studio, it can save you a lot in actual studio costs. By recording all your arrangements at home on your sequencer, you can avoid using valuable studio time to get the basics of your song together. Then all you need do is take the sequencer and keyboard into the studio, sync it up to the multi-track and you're already halfway towards finishing before you've paid for the first hour.

Many studios also contain a collection of synths and samplers which you can hook your sequencer up to, possibly giving better quality sounds than those that were available on the keyboard you originally recorded the sequencer parts with.

So before you rush out to buy that new piece of studio equipment, consider the advantages of bringing MIDI into the equation – you won't regret it. FM

Using a sequencer synchronized to a multi-track tape machine



Affecting the acoustics

MIDI's not only useful for creating sequenced music and automating your mixdown; it can also be used to enhance your acoustic recordings on tape. This is because many effects processors and reverb units can be controlled by MIDI. It usually works by sending messages (known as Program Change messages) which change presets on the effects box.

Imagine a situation where you recorded the guitar part to tape (without any effects), and you used a reverb on the tape track it was recorded to, to add depth to the sound. You might want to change the reverb setting between the verse and the chorus, which would normally entail switching the presets on the reverb unit while the tape is running. However, you could automate the changes by placing Program Change messages in your sequencer, running in sync with your multi-track tape machine.

More complex effects processors enable you to change parameters, so you could, for example, bring distortion in gradually. The possibilities are endless.

◆ **The Yamaha SPX-990 is typical of the advanced effects processors you can control with MIDI.**

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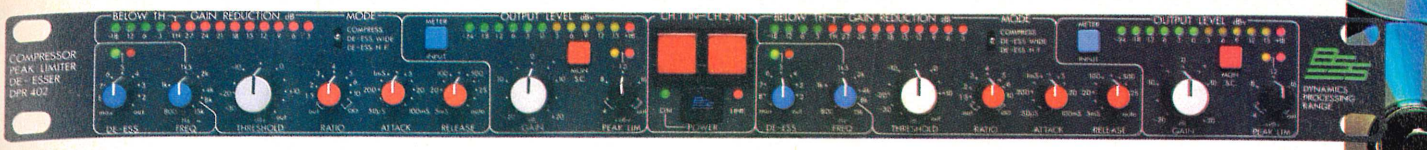


◆ And here, to kick off, is the BSS DPR 402 – a typical studio compressor with all the functions and features you're ever likely to need. Compression, expansion, gating, loads of knobs and buttons and tons of flashing lights – the real thing and no mistake.

The big squeeze

Compression is often overlooked by beginners, but it's a key ingredient when you're aiming for pro-quality recordings. Richard Wentk expands...

YOU'VE NO DOUBT been faithfully following this series on effects and signal processing, so by now you'll have reverbed everything in your mix, added a tasteful, dainty chorus in one place, a buzz-saw flange in another, pitch shifted your vocalist into another dimension and EQ'd the whole lot till your neighbours have started to look in the *Yellow Pages* under the Contract Killers section. Chances are, sooner or later, you'll be wanting to get it all down on tape.

Like most people, you've probably sat there at one time or another with that little strip of magnetised plastic rolling by, trying to keep everything as loud as possible without letting the meters escape too far into the red, and thinking 'There must be a better way of doing this'.

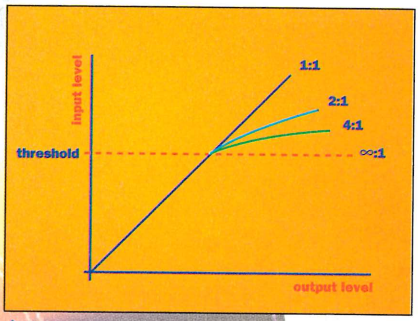
There is. It's called compression. Besides being a handy way to give your tapes punch without distortion, it's also a potent production tool that adds a familiar, professional-sounding gloss to just about any music it's used on. Unlike reverb and chorus (and the rest), which are time-based effects, and EQ which changes the frequency balance of a sound, compression and related processing – expansion and gating – only work on a sound's volume.

Compared with the excitement and immediacy of the other effects we've looked at, this may make compression sound quite dull, but in experienced hands it can make a big difference. It adds a tightness and punchiness to music that's impossible to create by any other means. But excessive compression can create a limp and lifeless-sounding wodge of noise with absolutely no excitement or power – it sounds a bit like a wet weekend in Skegness. To see how to avoid the perils of this kind of wet-cement mix, let's take a closer look at what compression actually does.

Compression is usually described with the kind of graph below. There are two important settings here, the first of which is 'threshold', shown by the horizontal, dotted line. This is most often marked on real compressor front-panels as a dB value – ie, on a scale somewhere between inaudible (-90db) and 'turn that bloody bass drum down, we're trying to sleep in here' (+10db). The threshold sets where the compressor kicks in. It's your way of saying to it 'Don't do anything until the music gets this loud'.

"Don't do anything until the music gets this loud"

The other values shown are the amounts of compression – a way of telling the compressor 'When you start to work, squish the signal this much'. On panel graphics this value is shown as a ratio. Strictly speaking, it's the difference between the change in input level and the change in output level. If such wibble leaves you perplexed, all you need to know is that 1:1 means no compression, 2:1 means a bit, 6:1 means quite a bit more and ∞:1 means a terrifying squeeze that rips the peaks right out of your music. (This is also called limiting – more later.)



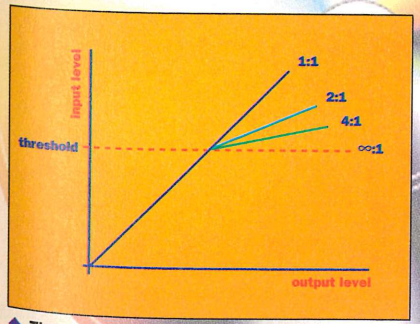
◆ A compressor with a 'soft-knee' response – note how the signal is gradually compressed.

Below is the graph of a compressor with a soft-knee characteristic – also called 'over easy' in certain parts of the USA – as opposed to the hard-knee response shown in the previous diagram. Soft-knee compression alters the compression ratio slightly, depending on the strength of the signal. Signals around the threshold aren't compressed quite as much as those way over it. The input signal has to be quite a bit above the threshold before the compressor starts working flat out at the programmed ratio.

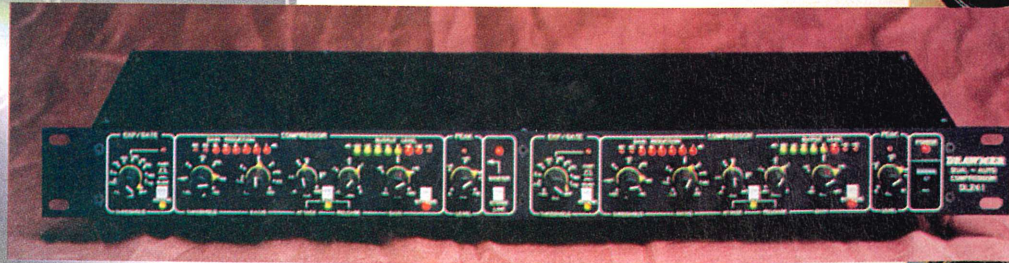
Hard-knee compression is much more direct – as soon as the signal crosses the threshold, the full compression effect kicks in right away. Whether a hard-knee or a soft-knee response works best depends on context. Hard-knee compressors have a much more positive, definite and aggressive sound. But a soft-knee response can be just the thing when you want a subtle, but not-too-obvious effect, such as lightly compressing a whole mix.

So much for the graphs. Before you let yourself loose with a real-world compressor. there are a few other controls you need to know about:

Peak/RMS A switch you'll find lurking somewhere on a compressor's front panel. The peak setting means the compressor is waiting on tenterhooks ready to be triggered by every last blip and sneeze in the ▷▷



◆ The dotted line – the threshold – shows the level at which



◆ An auto compressor, like this jolly nice Drawmer DL 241, is much easier to use than a full-featured

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◆ **The Boss CL-50, a good example of a budget, but full-featured compressor and gate. With lots of flashing lights too. Impress your friends. Astound your enemies. Compress your music. Etcetera.**

music. This is sensitive, ultra-vigilant compression, but in some situations it can sound artificial and heavy handed. The RMS (root mean square – engineer speak for 'average') setting means the compressor is more laid back about its job. Occasional peaks get by without it paying much attention, but if the average level of the music rises above the threshold it starts doing its stuff right away.

Attack time This sets how fast, or how sluggishly, the compressor will work. Set way up high – some compressors have panel markings down to 0.1mS – it kicks in as soon as the music crosses the threshold. On longer settings, the first part of a sound gets through uncompressed while the rest goes through the squeeze.

Release time This is related to attack time, but sets how long the compressor takes to return to a ratio of 1:1 after the level of the music has dropped beneath the threshold.

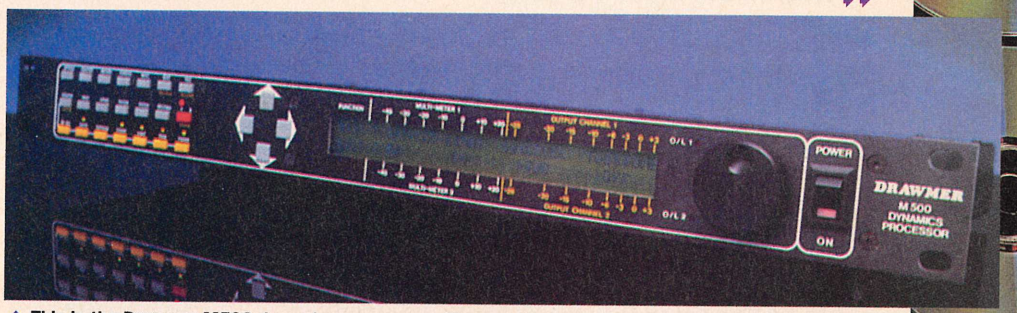
Hold time It's here you set the guaranteed minimum time you can expect the compressor to be doing its stuff. One nasty trap beginners sometimes fall into is setting attack, release and hold time to zero. This can cause nasty, grungy distortion on bass notes because the compressor is working on individual cycles of the bass waveform. To avoid this, most compressors come with a sensible, fixed minimum-hold time. If you're working with one that doesn't, don't set the hold time to zero unless you've had a phone call from someone totally talented and professional telling you that, just this once, it'll be okay.

Some compressors have automatic attack and release-time settings. On the better models this means the compressor actually tracks how 'peaky' the music is and adjusts attack and release times to suit. This is dead useful in practice and makes your job a whole lot easier.

Output level (Also called gain.) It does exactly what you'd expect it to, but this humble and unappreciated knob takes on a whole new importance on a compressor. As you turn the threshold down and the ratio up, the sound will get quieter – as the compressor does its thing, it turns the volume of the music down – so the output level is used to compensate for this by turning the volume back up.

On really whizzy compressors you can switch the meters between input and output to be sure that both levels match. On not-quite-so-whizzy examples you have to match the levels by hand using the meters on your desk – or by ear.

Gain reduction meter This is a handy LED bar-graph display which shows you by how many dB the signal is being compressed. It gives an instant visual guide to what's going on and shows directly just how much



◆ **This is the Drawmer M500 dynamics processor – the current state-of-the-art in level processing. It does everything – ducking, compression, expansion, de-essing, auto panning, and foot massage. Er.**

But what if I don't have a compressor?

Even if you don't have a compressor, there are still a number of ways you can create compression-type effects with your existing studio kit.

Tape compression

An old fave with analogue-prone recording engineers, this one. To create tape compression simply record something as loud as you can without it actually distorting. As the tape is pushed into the red, its recording characteristic is changed and the sound is 'naturally' compressed.

Unfortunately, this kind of trick is a lot easier with the kind of equipment and tape you'll find in a professional studio than with a budget multi-tracker in a back-bedroom. Pro-quality kit has tons of headroom and it takes a lot of hard work and ignorance to irredeemably sizzle and grunge up a recording.

Amateur and semi-pro equipment isn't nearly as forgiving as the top-flight kit, but that just means you need to be more careful – and perhaps do some experimenting to find out exactly where the sound starts falling apart.

Tape compression creates a warm and vital sound which is perfect for drums and (if you can get it to work) vocals. The only system it won't work on is a digital one. Digital recorders have no headroom at all. Once you've hit 0dB that's your lot, and if you try pushing it you'll just get an extremely unpleasant, rasping, buzzy kind of sound.

Envelope-generator compression

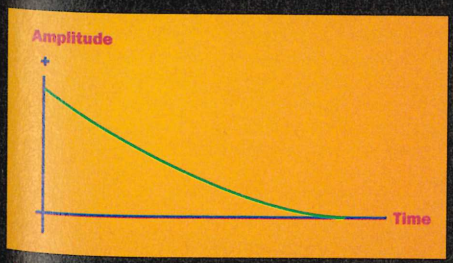
FM will be starting a series on the principles of sound synthesis soon, but here's a little taster to get you started. You can create compression-type effects by cleverly and stylishly programming the volume envelope generator on your synth or sampler, thus obviating the need for a separate compressor.

Compression effects are just variations of a sound's envelope. If you're canny with your synth controls it's no big deal to dial up some simulated effects which sound similar to the real thing but are created without any external hardware.

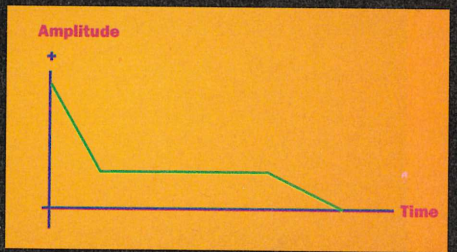
For example, we could add a percussive 'snap' to a sound – see the second diagram below. When using a real compressor to create this effect, the attack is left at a middling setting so the attack part of the sound goes through unchanged, and then compressor kicks in to automatically fade down the rest. Here's the kind of envelope you could apply to create a similar sounding effect: an immediate attack, rapid decay, then set sustain and release to taste.

Because practical envelope rates, times and levels vary so much from synth to synth, I'm not going to give you any numbers here. The best way to use these ideas is to go off and experiment on your own and see what you can come up with.

It's also worth remembering that rates and times are interdependent, so getting exactly the right kind of envelope can be a bit of a struggle – unless you have some kind of graphic interface to work with, such as those found on computer-based patch editors. Or, if it comes to the worst, you can just use your ears to monitor the sound.



◆ **We'll start with a pretty ordinary envelope applied to a synth note – the sort of thing you'd expect from a regular piano sound.**



◆ **It's possible to create a compression effect without a compressor. Here's how you'd modify the envelope to add a percussive 'snap' to the sound.**

Compression caveats

Compression is fun, cheap, clean and largely non-polluting. But there are a few of things you should keep in mind for maximum enjoyment.

1 More than just about any other studio widget, compressors need to be run at sensible levels. Are you running your effects at -10dB or +4dB? Find out, otherwise weird things will happen when you start compressing – you could be left with compressed egg all over your mix.

2 There's no polite way to say this, but some compressors sound cheap. Avoid them if you can. You can get away with burying a grungy reverb or flanger somewhere deep in the mix and only you and your guardian angel will ever know. But try the same trick with a Naffo-330X compressor/limiter and the whole world won't just laugh, but will come around to take away all your musical cool points immediately.

3 Noise. Every time you compress a signal you turn up the noise that's already there. The only way around this one is to kill the noise at source – if you can. If you haven't already been around your keyboard/multi-tracker/mixer set-up knocking mains hum and signal noise on the head, now's a good time to do so. If you're using a low-threshold, high-compression setting with a noisy source that you can't do much about, you may even need to invest in a noise gate to slice the noise right out of the mix.

4 Once you've plugged it all in, turned it all on and set it all up, take a step back and listen. Can you hear the compressor working? Is it obvious? Or is it, perhaps, really obvious? If you can hear pumping, or other strange dynamic effects, you'll need to think again about those settings. Ideally, compression doesn't do anything to a sound except make it more – how should I put this? – listenable. If your compression settings are doing any more, you may need to tweak them a bit till they sound less obvious.

5 It's easy, once you've discovered the joys of compression, to start using it everywhere. Don't. Like all other effects, compression sounds best and most effective when it's used cleverly and creatively. Overdo it and your mixes will sound like wet cement.

◆ **The Urei LA22 – as typical a compressor as you'll find. It has all the basic features and no frills. But it still has loads of flashing lights. So it must be good, right?**

◀◀ your music is being mangled.

Stereo link Like cans of XXXX, compressors often come in packs of two or four. The stereo-link switch makes sure that when a pair of compressors are being used in stereo they work together intelligently, usually taking a combined peak or average over both sides of the mix. This ensures the stereo image stays stable – without it you'd get bits of the mix bouncing from side to side in a hugely entertaining, but completely useless kind of way.

So now you know what all the bits do, what can you do with them? The first thing a compressor can do is make things seem louder than they really are. Have you ever wondered why the ads on the telly are always louder than the programmes? It's because ad soundtracks – the vocals and the music – are very compressed compared with those of standard TV programs.

Knowing this, we can work our first bit of compression magic. Remember when we were trying to get something down on tape? To record a compressed version we just routed the whole mix through the compressor – see the table below for some workable settings – and then recorded the result. What goes down on tape sounds 'miraculously' louder because the peaks have been turned down – compressed – and the volume turned up to compensate.

Done cleverly, compression can add that sound to a mix. Like TV stations, FM radio also compresses music and vocals as a matter of course and, as a result, whole generations of listeners are used to associating compressed-sounding music with a certain kind of professionalism.

This trick of making something seem louder than it really is is one of the main tools of the compression-master's trade. It can be used just as effectively on any single instrument within a mix, and here's some advice on how various elements of a recording can benefit from a spot of squeezing.

Vocals These will keep you on your toes, however much you compress them. A savvy singer plays to the mike, getting closer during the quieter bits and drawing away when really belting it out. The best way to track this is by riding the recording-level slider on the desk. If possible, find out where the dynamic bits are before you start recording so you're ready when they happen.

With vocals, lower compression ratios sound more natural. But if the track is really dense you may need to squish the vocals hard to make them 'sit'. For delicate singers, low thresholds and compression ratios ▶▶

Compression for all

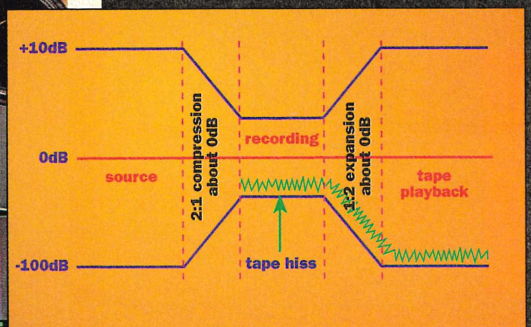
If you've got yourself a compressor, but are a bit stuck with it, give these settings a go. Remember, they're just suggestions and not in any way infallible or absolute – if in doubt, your ears know best.

Sound source	Attack	Release	Ratio	Hard/Soft	Gain reduction
Vocals	0.1-5ms	0.5s	4:1	Soft	5-10dB
Bass	3ms	0.25s	4-8:1	Hard	5-10dB
Synth bass	1ms	0.1s	8-12:1	Hard	5-15dB
Drums	1-5ms	0.25s	5-10:1	Hard	5-15dB
Solo instruments	1-10ms	0.5s	4:1	Soft/Hard	2-6dB
Rhythm instruments	1-10ms	0.2s	4-8:1	Hard	5-10dB
Whole mix	0.1s	0.4s	2-4:1	Soft	2-8dB

The secrets of dbx

So what's the opposite of compression? Expansion, right? And if you put a stage of compression next to a stage of expansion, you get a rather nifty kind of noise reduction.

The dbx noise-reduction system has been around since the mid 70s. Although it was a rival to Dolby B, it never quite grabbed the same hold over the consumer market. But you will often find it – still – doing sterling service on multi-track tape decks.



◆ **The secrets of dbx noise reduction revealed.**

Here's how it works. Like Dolby B, dbx is dual-ended – tapes are encoded when recorded and decoded on playback. Unlike Dolby B, though, dbx is a broad-band system – it treats all frequencies exactly the same. In theory it should give better performance than Dolby B, but in practice – as ever – it's not quite so simple.

To encode music, dbx compresses it. Unlike a studio compressor, though, it compresses evenly around 0dB – which means anything quieter than 0dB is turned up and anything louder is turned down. On practical systems a ratio of around 2:1 is used. The compressed music is then recorded to tape.

As it's recorded, tape hiss gets added as an unavoidable side-effect of the recording. Now here's the clever bit. On playback, dbx expands the music back to what it was so it plays back more or less unchanged. This time the quiet bits below 0dB are turned down even further and the loud bits are turned up. What this means is that the volume of the tape hiss is turned way down. If its natural level is around -45dB – a typical figure – after expansion (at 1:2, remember?) the tape hiss will be down to -90dB.

Or at least, that's the theory. In practice, dbx does work very well, as its inclusion in a whole range of multi-trackers from different manufacturers goes to prove. But there are a couple of things of which dbx users should be aware. First, low, dull bass or bass-drum sounds can confuse the system. These kind of sounds let tape hiss show up all too clearly and can lead to a phenomenon called 'pumping', a kind of whooshy, breathy effect that appears as the amount of compression and expansion changes audibly.

The other drawback is that dbx is more sensitive to misalignments in the hardware and electronics it uses. If there are any problems in this area it makes them worse. So if your tape heads are becoming worn, using dbx will bring out the loss of treble in your recordings much more clearly than Dolby B would.

All the same, dbx is still a worthy contender in the noise-reduction stakes and, until digital portastudios become so cheap that they're given away free in cereal packets, it has a good few years of working life ahead of it yet.

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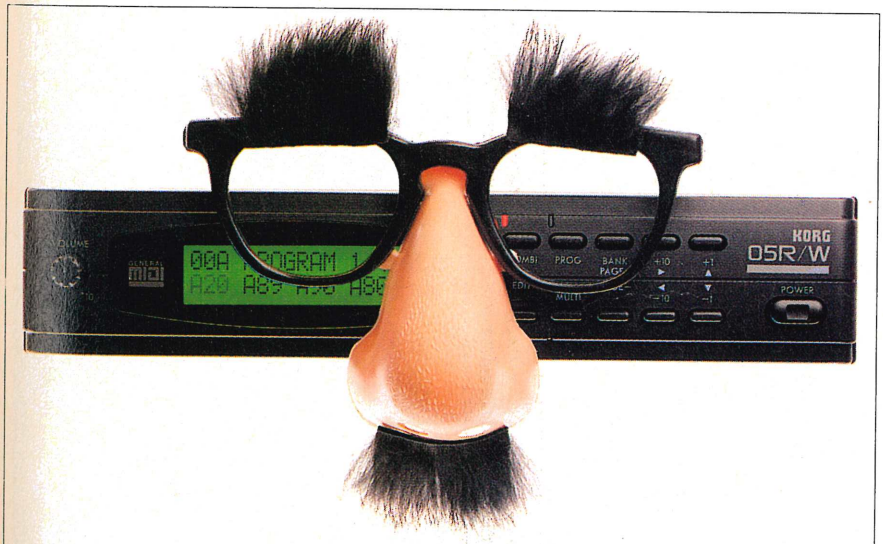

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And there's no disguising the value of that.

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Dolby doctoring

◆ **First of a new breed, or the end of an era? The Fostex 380S includes Dolby S noise reduction. But how long before we all go digital?**

Ray Dolby is the man who brought effective, cheap noise reduction to a planet starved of a convenient and effective recording medium, and who just about single-handedly made possible the whole consumer and home-recording market based on that most humble of media – the compact cassette.

Legend has it – and it happens to be true – that cassettes were never meant to be used as a medium for high-quality music recording. The engineers at Philips who first designed them felt they'd be lucky if they achieved dictation quality.

But Ray, and the consumer market, had other ideas, and the invention of Dolby B turned the whole market on its head, starting a race that's still going on today with Digital Compact Cassette and Sony MiniDisc.

There's a number of Dolby noise-reduction formats, but they all rely to a greater or lesser extent on frequency-dependent compression.

Dolby A, which was the professional multitrack format until it was replaced by Dolby SR and super-quiet, hiss-free digital, worked rather like dbx, except that it split the audio signal into four bands, compressed those separately and then expanded them individually on playback. This worked a treat and most 70s' and 80s' albums used Dolby A. But it was far too pricey for ordinary mortals and it was the much cheaper, but much less effective, Dolby B that became the domestic standard.

Dolby B works by combining expansion on recording with compression on playback. What this means in practice is that the trebly components of quieter sounds are boosted on to the tape and then turned down again by the playback circuitry – squishing the tape hiss in the process. The exact amount of boost and cut depends on how loud the music is. Music that is pushing the tape to its limits is left unchanged, the theory being that if it's that loud you won't be able to hear the tape hiss anyway. Quiet music gets its treble turned up – and then down again – by up to 10dB, and this sets how much the tape hiss will be turned down by.

All the later Dolby noise-reductions systems – the professional-standard Dolby SR, the consumer Dolby C and the more recent Dolby S formats – are extensions and variations on these same principles. Dolby C can provide up to 20dB of noise reduction and Dolby S up to 24dB. Dolby SR is rumoured to be able to do even better than that. Supporters of Dolby claim the systems keep all the best of an analogue multi-track's warmth and 'forgivingness' while bringing the dynamic range up to digital standards.

◀◀ work best, while for real belters just crank up both till you get what you want.

Heavy vocal compression can emphasise sibilant sounds – sss's and the like – and you may need to apply something called de-essing (see the 'All in the family' panel) to cure this problem.

Bass and synth bass Here are two instruments that really benefit from compression. A real bass guitar produces far too much welly to go straight down on tape, so compression is pretty much an essential here. This also applies to any half-decent bass sound.

Use a medium attack – it takes a while for a bass note to start happening – unless you're recording a very dynamic 'popped' or percussive bass sound. If you set the threshold low and the ratio middling you'll get a dub-like, rumbly, reggae-type effect. Leave the threshold high with a much harder-sounding ratio if you want to keep more of the dynamics.

Drums They vary hugely and the settings you use depend a lot on the kind of effect you're after. Drum machines and synth drum kits are often partially compressed anyway, but sometimes a little extra helps to get them to 'sit' right in the mix. Real drums can handle quite a bit of compression before they start to sound dead and flat and, in practice, this is another example of how some sounds can be made to appear much louder and punchier in a mix than they would otherwise.

"If you go beyond a ratio of about 4:1 you're pushing it"

The guideline settings above will get you started, but there are so many different approaches to drum recording that you'll be a lot better off just experimenting till you find an effect you're happy with. Try compressing different sub-mixes – toms, hi-hats, and so on – separately. This will keep the drum kit sounding fresh and live, as well as maintaining dynamic separation between the different sounds.

Solo instruments These can vary hugely in character, but in general they're best treated like vocals. Excessive compression is a bad move here because the results can easily sound unconvincing and forced – then again, maybe that's what you're after.

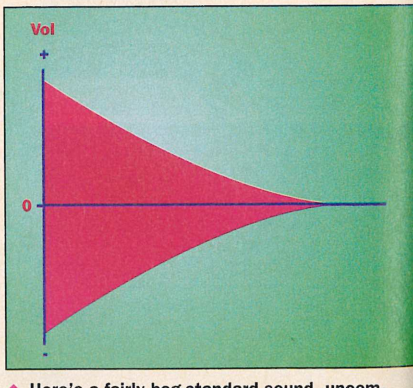
Rhythm instruments Time for rather more severe treatment. Rhythm guitar and keyboard parts can both benefit from some major dynamic tweaking, but brass parts (especially when using real instruments) sound particularly excellent when heavily compressed – very tight and effective. Use a middling threshold and a high ratio for that gorgeous brass-section sound.

The whole mix Like most effects, this one works best if you don't overdo it. Some compression – if you go beyond a ratio of about 4:1 you're probably pushing it – can work a treat here, providing you're using quality device that isn't going to muddy up the sound.

If you want that 'radio' sound, this is the way to get it. But watch out for very dynamic, uncompressed sounds in the source mix. These will 'duck' the music around them, which can sound a little strange – and unprofessional.

So now you know about the basics. How about something a little fancy?

Mutant envelopes



◆ **Here's a fairly bog-standard sound, uncompressed and decaying away to nothing...**

All in the family

Besides compressors, there's a whole family of related devices that work on levels and envelopes:

Limiters These chop the peaks off the top of a signal. You set a threshold, and that's as far as your music goes. This makes limiters perfect for digital recording where there is no headroom – if you go into the red lights you're guaranteed instant, ear-rattling distortion.

Unfortunately, all limiters introduce a certain amount of distortion so they need to be handled with care. But the better ones – especially warm and cuddly sounding valve-based designs – can play a useful role in mastering. Most compressors can be persuaded to work as limiters but, unless you really are doing mastering, that ∞:1 setting is one you'll probably never need.

De-essers Frequency-dependent compressors specially designed to tone down the 'ssss'-prone range of the human voice – around 5kHz. If you use lots of compression on a voice you may need to call in the services of a de-esser to prevent an unpleasant, snake-like quality from overwhelming your vocalist's voice.

Expanders Like compressors, except they do the exact opposite. Where a compressor makes a sound quieter, an expander makes it louder – and vice versa.

Expanders work best when they're frequency sensitive. This makes it possible to zoom in on some part of a sound – the snap of a snare drum, for example – and bring it right out in the mix.

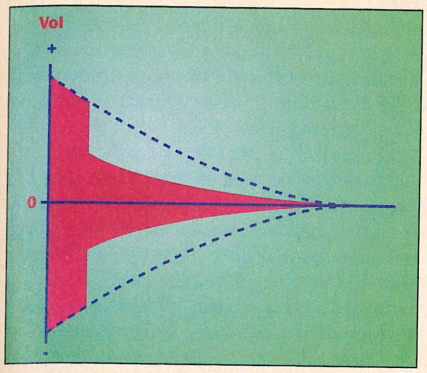
This is much more of a special effect than plain compression, which is why you won't come across these boxes nearly as often. But frequency-dependent expansion is a hugely powerful toy and can really bring a mix full of sagging and tired sounds back to life.

Noise gates These are simply gates that only let sound through once it's above a threshold. They're mainly used to stomp on noise in hissy and hummy studio situations, although they also have some wild and inspiring creative uses.

The signal that's gated and the signal that's doing the gating don't have to be the same, which makes it possible to 'chop' sounds on and off from other sounds. The most famous example of this is probably the gated-guitar sound used by the Shamen, which is turned on and off by a hi-hat. This can create a terrifically funky and impressive rhythmic effect. It's rumoured that during their 15 minutes of fame, Stock, Aitken and Waterman (remember them?) used to do a lot of cross-gating and cross-compression to create fantastically tight-sounding mixes.

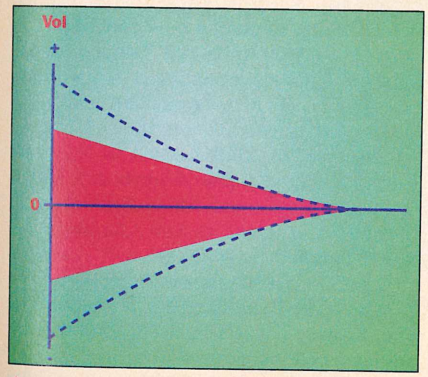
A compressor is really a kind of programmable envelope controller. By fiddling with the attack and release settings you can create some ear-defying special effects.

These tend to work best – or at least be most obvious – with percussion sounds.



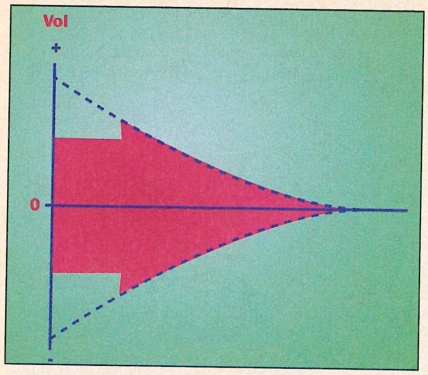
◆ ...but with a slow attack on the compressor we can snappy it up a treat...

The snap Use a sound that starts fast, but treat it with a slow attack – say 10-20mS. This will let the snappy start of the sound through the compressor unmolested, but will add a dramatic drop in volume once the effect kicks in. Use this to add punch to drum sounds and spiky bass parts. But beware – unlike most compression, this adds peaks to your mix rather than smoothing them out, so you'll have to be extra careful about setting levels.



◆ ...or, by means of the cunning fast-attack ploy, we can shove the sound right in your face.

The 'in your face' sound Use a fast attack and a fast to medium release. This will slice the initial attack off the source sound and create a very 'in your face' effect. Try it with a Roland TR-808 drum machine for maximum impact.



◆ How about a spot of gargly double-triggering? Set fast attack and fast release – you're away.

The distorted envelope Use a fast attack, and a fast release. The trick here is to set the release time low enough so that the compressor cuts out and 're-triggers' the original sound before it's finished. This creates disturbing, occasionally amusing, double-trigger effects.

Frequency dependent

Most compressors have a 'side-chain' input, which means you can separate the signal that's being compressed from the one that controls the dynamics. For much of the time you won't actually need to do this, but if you want to get into some fancy and creative compression you'll need to get friendly with that side chain and find out what it's capable of.

The basic trick with frequency-dependent compression is to drive the side chain with a copy of the original signal, but one that's had a range of frequencies artificially boosted with EQ. This makes the compressor more sensitive to those frequencies, which in turn means the compression effect will turn them down more than the frequencies that have been left alone. Here are a couple of its applications:

De-essing This is one of the most common and useful of these tricks. In fact it's so common that it often comes in a box all its own, or as a special section already built into the compressor. See the 'All in the family' panel on the previous page for more details on what it does.

Bass limiting It happens. Even in clubs, it happens. Speakers can only take so much thrutch and then the coil goes flying across the room – or, at least, it is damaged by huge, cone-warping bass blarps. You'll sometimes find a compressor called in on bass-limiting duty to prevent burst eardrums and exploding speakers. A good, solid example of the effect – even if not a wildly creative application.

Cross compression

And now for some more side-chain compression magic, but without the frequency-dependent complications.

Ducking Ever wondered if radio DJs have to turn the music down by hand every time they say anything? They don't of course – they use a trick called 'ducking'. The music goes through the compressor, while the output of their mic drives the side chain. With a fast-ish attack and a medium release the compressor 'ducks' the music whenever they say anything. Clever, huh?

Ducking has applications beyond radio, though. One obvious one – why not turn the backing mix down a notch or two when the lead singer comes in?

Funky cross-mixing You can create a similar, but much more subtle effect by cross-compressing different parts of a mix. Try ducking a keyboard pad – just a touch – in time to the bass drum or hi-hats. Clever cross-compression can create a fearsomely tight and punchy-sounding mix, particularly when the final result is 'creatively' compressed as well. And don't forget, you can use any of these ideas on reverb effects as well as 'real' sounds. Are you feeling inspired yet?

Anyway, that's where we'll leave it for now. Next month we're back-tracking a bit and looking in detail at that most taken-for-granted of all effects – the delay. See you then, then. FM

FMCD

Live Compression tutorial – see the *FM* CD vol 6

Of course, none of this information about compression and its various applications means anything unless you get a chance to listen to the effect itself in action.

It's time to draft in the tutorial might of the *FM* CD so you can get a better idea of what's going on. Here are explanations of the compression demos specially recorded (at no little expense) for this month's disc.

TRACK 25

a Four snare hits recorded dry, then four with added compression. Don't expect the effect to leap out and smack you in the chops – compression is a subtle thing. Notice how the dynamics in the snare hits are evened out, which fills out the sound.

b The 'snap' effect, created using an envelope generator. Here the effect has been grossly exaggerated just to make what's going on as obvious as possible – if it's worth doing, it's worth overdoing. As the envelope is lengthened, the sound fills out and loses that percussive bite.

TRACK 26

a A drum loop put through one kind of compressor, in this case a Drawmer LX20. First we have the whole four bars dry, then with the compression switched in. The compression fills out the sound and makes the lower-level details clearer.

b The same loop put through a Symetrix compressor. This unit has a fixed slow attack so it keeps a percussive bite to the sound. Again, the sound is heard dry first and then with the compressor switched in.

c Some funky bass playing from *FM*'s very own Tim Tucker. It's been recorded dry, compressed, dry, then compressed. Notice how the compressed sound is slightly fuller and deeper.

TRACK 27

A dub-ish bass part to illustrate the effect again. The sound is recorded dry, compressed, dry, then compressed again.

TRACK 28

Here we are with two short item-ettes that pretty much speak for themselves. And many thanks go to Stephanie Wilks on lead vocals.

TRACK 29

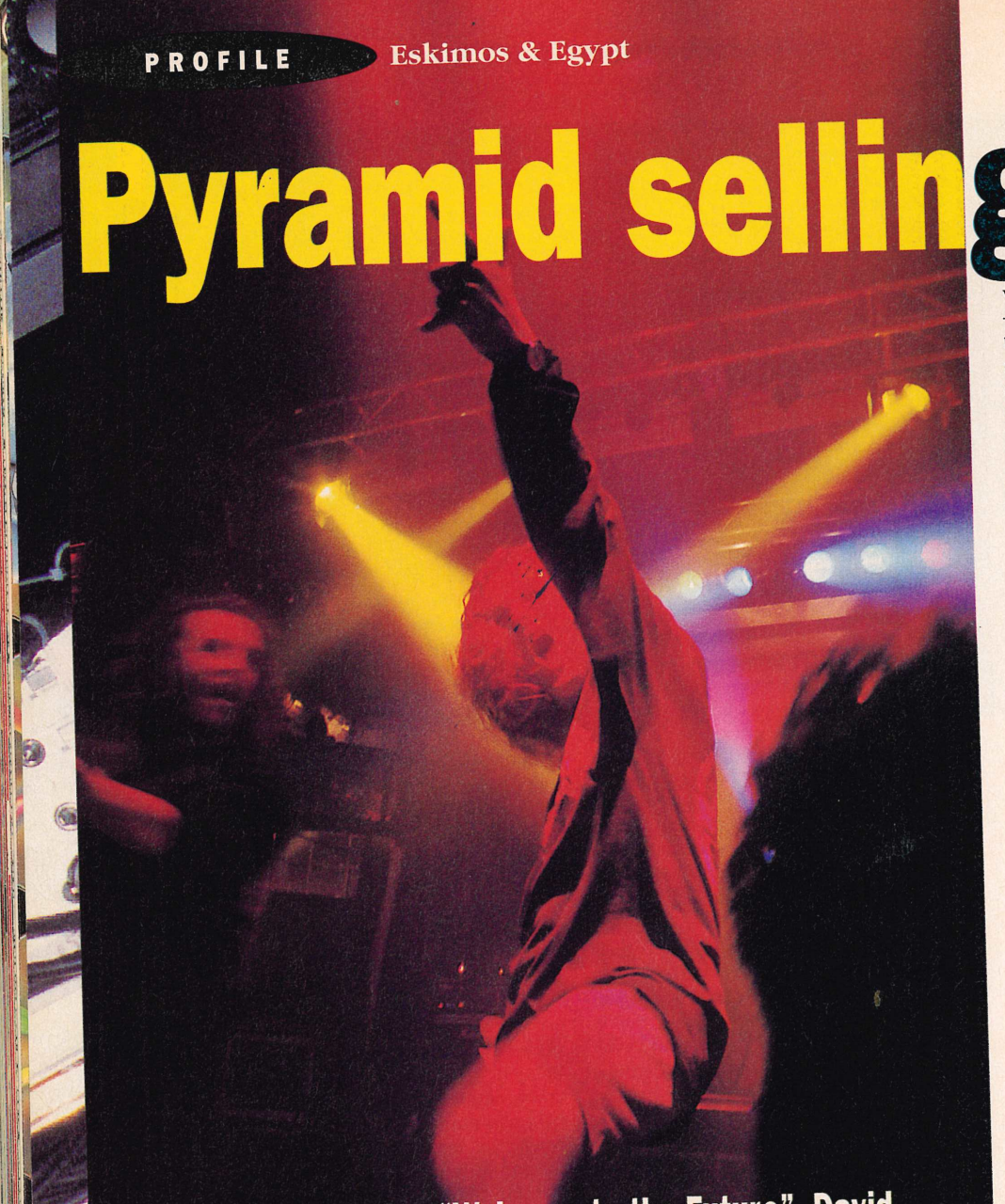
To finish off this fine and terribly worthwhile compression tutorial, take a listen to *4 1/2 Hours*, a complete track which was recorded especially for this CD.

The vocal part, sung by Stephanie Wilks, has been compressed and multi-tracked over a live piano backing to create a full and rich-sounding lead vocal line.

The saxophone part was played by Will Gregory of Gas Giants fame (see the *FM* CD vol 5 issued with *FM* 15 for more on the Gas Giants). It has also been compressed to keep the instrument's dynamics under control – wind instruments, being expressive old things, fluctuate wildly on level – and to create a sound that 'sits' nicely in the mix.

Will handled the recording and production and the whole thing took about four and a half hours to do – hence the name. There's no sequencing or sampling on it either. (At least,

Pyramid selling



Eskimos & Egypt sing "Welcome to the Future". David Robinson says, "Welcome to *Future Music*, lads!" as they talk about playing live, sampling and, naturally, the future.

THE ESKIMOS ARE glowing. Having written all of their material up until now on an outdated Roland MC-500 sequencer, the Manc lads – Cris, Mark, Daivo and Paul (alias The Captain) – have only just discovered the joys of Steinberg's advanced MIDI sequencer *Cubase*. On their recent debut album, *Perfect Disease*, there are several songs about the future and yet, MIDI-sequencing-wise, Eskimos & Egypt have barely caught up with the present.

"We haven't had time to just sit back and look at what we were doing, we've been too busy working," explains The Captain. "Finding time between single releases and remixes is difficult. But using the MC wasn't awkward, because that's all we knew."

Fortunately, the band will soon be able to further investigate the intricacies of *Cubase*. When we spoke, Daivo and The Captain were ending a promotional tour, after which they would head straight into the studio to work on a new single. The tour has gone to plan, apart from tonight where a disagreeable Akai S1000 output is providing amusement for the sound crew.

This gig, S1000 notwithstanding, brings E&E's rock-guitar synth-dance half-rap half-vocal fusion – techno-metal, you might say – to London's Astoria 2. It's a crossover style that few bands have attempted successfully: only Sunscreem, Sheep On Drugs and, to some extent, Jesus Jones spring to mind. Paul recalls how the band started out.

"We were a rock band at first, but we had synths and we were into New Romantic electronic stuff. When the house thing happened it transformed our outlook, but we wanted to give it something else..."

"We love the energy of guitars and the rhythms of dance music," Daivo interjects.

"Early Killing Joke was very dancey guitar stuff, but obviously still on the rock side," The Captain remarks. "They influenced us greatly. But also we listen to Pink Floyd, Tangerine Dream, Orbital – we could go on forever!

Daivo: "There's no one influence on our sound because we all write the songs. That's why there's such a mix of styles on the album – ambient tracks to really hard ones."

The Captain: "Just because I'm the keyboard player, it doesn't mean that I"m going to write the ambient track – it could have been the guitarist. We're really democratic like that."

Eskimos & Egypt pride themselves on being capable of putting on a damn fine live show, but there's still a DAT backing lurking beneath. "It's only got drums, a few samples and sequencer riffs on it, but that's it," claims The Captain.

"I've got an S1100 which is triggered from the Roland Jupiter 6 keyboard. In the studio, we use sounds from that on nearly every track. Tonight it's just a dummy keyboard, though."

"I use the 1100!" chips in Daivo.

"Oh yeah, I use the 1000 now, don't I?" The Captain corrects himself. "But I have got my own Quadraverb!"

The Quadraverb is MIDIed up to the S1000 so The Captain can change program numbers on both units with a single Jupiter patch-change. An old Jen SX1000 ("a nice square wave, and great for noise and bass sounds") completes The Captain's keyboard collection. In his rack are various DI boxes, the effects units, a spare DAT player and Daivo's Akai S1100. That sampler is triggered by a single MIDI connection from Daivo's Juno 106. "If anything goes wrong, he points at me and I sort it out," Paul reveals – The Captain really does steer this ship, it seems.

Over on the other side of the stage there's a Roland JD-800, played by both Mark the guitarist and Cris the vocalist. This is hooked up to a Roland S-330 sampler. "You don't see many of those now, do you?" asks The Captain. "I'll tell you why – 'cos they are bollocks!"

"The processing in them must be the quality of a Realistic mixing desk, you know what I mean?" laughs Daivo.

"If you take an output from the S-330 and plug it into the Akai, then play the sample back from that, the quality improves!" Surely

Kit city 7

Most of E&E's gear goes out on stage. Left behind in the studio is a 12-channel Seck desk and a pair of inadequate JBL Control 5 monitors. "We're not keeping those for much longer," moans The Captain. "When you are recording, loads of frequencies in the bass and

professional high-end magneto-optical disk editor. "Every time we do a mix and there's something we don't like, we just chop it out. We probably use it as much as the sampler," says Daivo.

"It's great for doing 12-inches as well," adds Paul. "It's so easy to use, we often spend a couple of days editing with it. We did a track on the *State Of Surrender* 12-inch where we took a guitar track and chopped it up and totally changed the way it was played." The

machine – after all, it was their very first sampler. "There is one good thing about it – you can plug in a composite monitor and get a much better display than you do on the Akai."

What about live sequencing instead of a DAT backing, then?

"We haven't got enough memory to run it all live – it's a money thing, I suppose. I don't want to take anything away from Orbital or the Aphex Twin, but because all their music is along the same lines, you can run it live quite easily. There are too many variables between tracks in what we do. Like, we don't have a backing singer: I play the female vocals from the sampler, and I'm using all the sampler memory for those.

"Hard disks, memory expansion – that is the next step basically. But we are a lot more live than we used to be." There they go again.

Prosecute the star

The sampling issue has unearthed all manner of surprises for the Eskimos. They wanted to use the opening "Aaaiy-ee-ah!" from Sly and Robbie's 1985 track *BOOPS – Here to go*. Enquiries with Island Records proved embarrassing: Sly and Robbie didn't know where the original sample had come from. Since they hadn't obtained permission to use it at the time, they didn't want E&E to use it in case old wounds – and new writs, possibly – were opened.

A similar skeleton jumped out of the closet when E&E tried to clear a sample of David Bowie shouting "Rock and Roll!", taken from his *Diamond Dogs* album. "Behind Bowie's voice there is crowd noise. It turned out that he had lifted this from a Doors album," reveals The Captain. "But the irony is, the publisher still wanted 50% of the publishing royalties if we used the Bowie sample!"

◆ Mark: Slash imitator and occasional keyboardist.

As you may have guessed, the band decided to leave it well alone.

However, they have grabbed a single, but distinctive, synth sound from Human League's *Love Action*. It appears a mere handful of times on *Welcome to the Future*. Daivo defends their sampling: "We didn't clear that because it's such a tiny fraction – it's just an effect."

"You know the new Capella track, *U Got 2 Let the Music?*" asks The Captain – "Well, there they've sampled us! They've taken an acid bass line from a 12-inch Beatmasters remix of one of our tracks. You can tell because the filter sound repeats loop after loop. They could have come up with the line themselves, given a TB-303." So do they have any objections to the Cappella lift?

"What, apart from that it's a crap track?" laughs The Captain. "Yeah, it's just that there is a copyright symbol on the cover, and everything in the track has been lifted from elsewhere. That's just being cheeky."

◆ **Bass player Daivo plays a Juno 106 too. "I'm not one of those people who says, 'Ooh, it's got to be on the bass.'" Right: S-330 and JD-800.**

We'll come to the future

One album, several EPs and remixes down: where next for the techno-metallurgists?

"We'll definitely be keeping the rock-dance integration," says The Captain.

"We like elements of hip-hop as much as we like bits of rock," adds Daivo, "but you won't hear so much rap on the next album because we're concentrating more on songs. Cris isn't too happy with some of the rapping on *Perfect Disease,* but that's because it was done ages ago." *Perfect Disease,* in fact, was a story-so-far kind of affair. The songs were written between nine months and three years ago, and during that period the band had to grow with the technology. Now, at last, they've got their heads round it, and so the next album won't be another three years in the making. *Cubase* willing, of course.

The future should also witness a change in the writing approach. Daivo: "Before, we recorded a song, then played it live, and the sound improved as we got into it. So in the future we're gonna try and get a live feel for the tracks as much as possible before we record – even if it's just playing it in our own rehearsal room."

"Now we're taking out everything from the backing track that we can possibly play live," says Paul. "There are loads of samples we could have played live, but we left them on this time round. I think, 'Why didn't we take that one off!' But you don't think of those things at 5am when you've been in the studio all f**kin' night!" FM

Axl to grind

Eskimos & Egypt's most notorious track is *G'N'R – That's What U Want?*. Originally featuring a loop sampled from the opening riff of Guns 'N' Roses' *Sweet Child O' Mine,* it is an angry (but groovy) rant, defaming the alleged racist and homophobic views of singer Axl Rose. Live, Mark plays the riff with a guitar sound closely immitating the Slash sound. It's a combination of distortion from a Marshall amp and a self-programmed chorus-compression setting on a Zoom 9030 effects unit.

"After every gig, someone says 'You are not playing that!' But although we sampled it originally, now Mark always plays it live.

"We are not using the sample just for the sake of it," Daivo emphasies. "It adds meaning to the track, it adds attitude. It's not just 'Ooh, that's a good sample, we'll use that'"

"Which is the first thing you do when you buy a sampler!" concedes The Captain. "We try to avoid that sort of thing now. I mean, I heard this track, where someone had taken a chunk of Floyd's *Wish You Were Here* and stuck it over a drum beat. That was a massive insult to the original track in a way. People are just taking the piss."

The band wanted to use the riff on the album, but Warner, Guns N' Roses' parent label, prohibited the blatant steal. Not surprising, really – they didn't approve of the libellous lyrical connection between Axl and Adolph Hitler much, either.

"In order to use it, we had to prove to a musicologist that there were enough differences between our version and the original," explains The Captain. "So we recorded Mark playing the riff, reversed it, and played it back four different ways. The musicologist still said we wouldn't get away with it. In the end we recorded a completely new guitar riff for the album."

"The track definitely loses something because it's not the same riff," says Daivo.

"It was a bit of a rush job, too," laments The Captain. "We'd done the track, then we had to get an Akai DD1000, edit out the guitar and drum parts. Then we had to edit in an instrumental without the guitar, finally adding the new guitar part through a small mixing desk. We lost a bit of quality there. We were a bit gutted at the time."

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Technological Breakthrus

Aarhus, in the middle of aarstreet

◆ **Michel Waisvisz, getting his hands on 'The Hands'. Look, just read the story, okay?**

The International Computer Music Conference (ICMC) 1994 will be held in Aarhus, Denmark, from September 12-17, and is being organised by DIEM, Denmark's centre for electro-acoustic music. The conference's theme is 'The Human Touch', and it will be concentrating on music produced by human/machine interaction. Holland's Michel Waisvisz will be performing with a computer controller known as 'The Hands'; ensembles from Oslo and Copenhagen will be playing acoustic-cum-computer stuff; there will be dancing, fireworks and no end of strange noises being passed off as serious music.

As well as all the jollities, there will be forums and paper sessions, studio reports and a trade exhibition. Trevor Wishart, vocal experimentalist and *FM* CD Vol 4 star (he created that resynthesized voice-to-bees excerpt), will be giving the linchpin address, as well as performing a new work for computer and voice. Electronic and computer-music composers are invited to submit compositions for possible exposure at the ICMC. The deadline for this is 1 February 1994, so get busy. Amiga tracker music is right out, incidentally.

◆ **Lis Fihl, ICMC 94 administrator, DIEM, tel: (45) 8620 2855**

◆ **The blurb you get sent when you ring Lis Fihl in Denmark.**

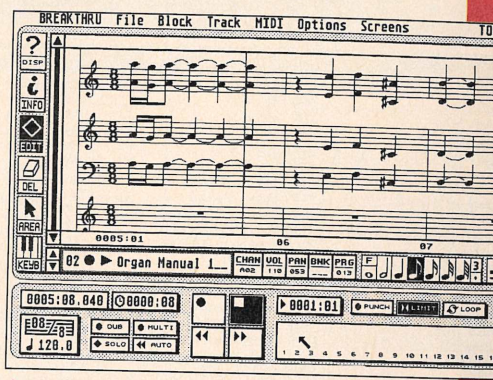
New sequencing and patch editing software launched for ST and Falcon users

Report by Dave Robinson

SOFTWARE TECHNOLOGY, formerly Gajits Music Software, has just launched a new range of dedicated synth editors. Each *Patchking Editor and Librarian,* which run as a desk accessories if you have sufficient memory, enables you to up-load sounds into your Atari, tweak them until you can tweak no more, then dump them back into the synth or save them on to disk.

Patchking is now available for the Roland JV-80, JV-880, U-110 and Yamaha TX81Z at £49.95 each. Soft Tech MD Alan Ackers says the company is planning to release a new profile every fortnight. By the time you read this, editors for the Roland Sound Canvas and Kawai K4 should be ready. A universal *Patchking* may follow. Alan adds that he is open to suggestions as to which synthesizers the *Patchking* range should support – he's got a bar-graph on the office wall keeping tally of the most popular requests.

There's good news for fans of *Breakthru* sequencers, too. *Breakthru 2* and *Breakthru Plus 2* have just arrived, offering multi-track score display, better score-writing and song-arrangement features, and a 'humanize' (a sort of 'de-quantize') function. *Breakthru 2* is £149.95; the *Plus* version, with an extra MIDI interface that plugs into the modem port and has slightly different software to give another 16 MIDI channels, is £179.95. Both packages come with a training manual on video, in addition to printed literature – great idea, guys. If you have an old version of *Breakthru* or *Breakthru Plus,* you can upgrade for £40, or go straight from *Breakthru* to *Breakthru Plus 2* for £75. You don't get a vid, mind.



◆ **The stave-tabulous multi-track editing display from the new *Breakthru 2* and *Breakthru 2 Plus.***

All Soft Tech Atari sequencing software will run on the Falcon, but: "It won't support sample playback – as yet," hints Alan.

◆ **Software Technology, tel: 061 236 2515**

Now for a CD-ROM

AMG, the sample CD company, is soon to launch the *Now CD-ROM.* This will feature samples from the promo CD *Now That's What I Call Sampling!* and the forthcoming *Now 2: The Future.* In addition to contributions from leading artists and producers, such as Coldcut, Pascal Gabriel and JJ Jeczalik, there will be samples exclusive to the format, including those from Keith Le Blanc, Vince Clarke and Joey Negro. These have been held over from the recording and editing sessions for other sample CDs.

AMG hopes to have the disks ready for the American NAMM music show at the end of January. They will be on sale at the low price of £50, in an effort to discourage piracy of the samples.

◆ **AMG, tel: 0252 717333**

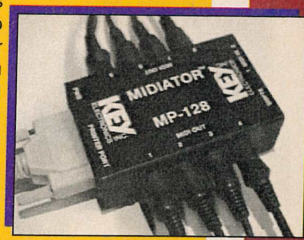
How many channels?

The KEY MP128 is a new PC interface from Arbiter Pro MIDI, giving you a startling eight fully independent MIDI Outs for £175. The MP128 connects to the parallel port of any PC, and is designed to be used in conjunction with any MPU-401-compatible card. With an MPU interface costing around £75, that's 144 MIDI channels in total for £250!

Q-Tek has a similar, many-orificed device for slightly more dosh. The MM1 MIDI Multi Port (£220) has eight Outs (again) and plugs into your parallel printer port (again), giving you a possible 128 MIDI channels. Four MM1s can be combined to provide 32 MIDI ports and 512 channels. Is that a record?

◆ **Arbiter, tel: 081 202 1199**

◆ **Q-Tek,**



◆ **Need 128-plus MIDI channels? If so,**

CD-ROM from you and Roland

It's the New Year, and you can make your own CD-ROM! With a little help from Roland, that is. For a modest fee, Roland will convert your sample library to CD-ROM format. And, if you've just bought an S-760 sampler, you automatically gain unlimited access to Roland's existing CD-ROM sample archive at the Fleet offices in Hampshire. Book early to avoid disappointment, as they say.

◆ **Roland, tel: 0252 816181**

Tutorial tut-tut

Last issue we said that RBF Software's *OctaMED Pro V5* manual was £20. Well, RBF's dropped the price to £15.99. The 220-page manual provides you with a thorough understanding of how to get the best from this Amiga's fave budget tracker. There are no diagrams included, though we're told a laser-printed, fully illustrated version is planned. Buy a copy now and you've a chance to win prizes, from a pack of blank disks right up to a Citizen Swift 240C colour printer.

◆ **RBF Software, tel: 0703 775999**

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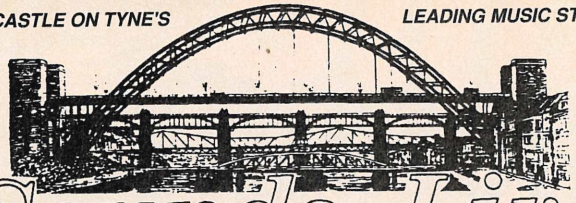

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Sequencing on the cheap!

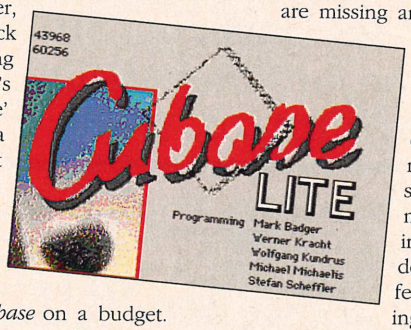
Mike Barnes looks at low-cost means of getting into sequencing on the Mac.

MACS ARE BECOMING more popular, thanks to the proliferation of low-cost models. Apple's across-the-range price cuts, and the launch of the budget Performa range, mean there are many more people exploring the possibility of music composition on Macs.

If you're considering Macs and music, but don't want to get your fingers burned with a high-price and over-specified sequencer, read on. we've gathered a handful of entry-level sequencing packages to point you in the right direction.

Steinberg *Cubase Lite*

Cubase Lite (from Steinberg of Hamburg) is a 16-track, entry-level version of the market-leading *Cubase* sequencer, and uses the graphic-block Arrange page idea for song arrangement. Although it's the largest of these 'Lite' sequencers, its size is a false indicator when it comes to features.



On first opening, the familiar Arrange window and transport controls might lead you to think that this really is big *Cubase* on a budget. However, a quick flick through the menus reveals that the majority of the edit windows (apart from Score) have been removed and all those fancy logical editors, mixer maps and groove quantizing you've heard about are nowhere to be found.

What's left is a straightforward, easy-to-use multi-track sequencer with MIDI File Import/Export, basic quantizing, score editing and limited score printing.

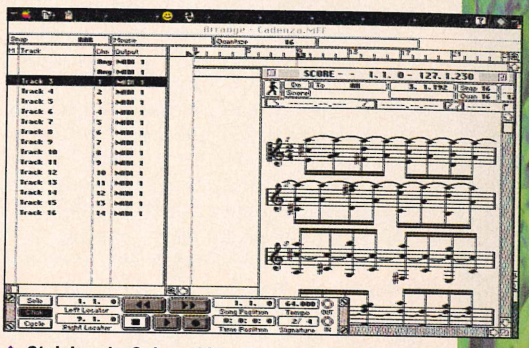
If these few features are all you need then fine, but for those who might have heard about the all-powerful *Cubase,* this version is heavy on the 'Lite' and light on the *'Cubase'*.

Opcode *EZ Vision*

EZ Vision is a straightforward 16-track sequencer, though with a significantly different interface to that of its more expensive brother, *Vision*. However, the good news is that it has been re-designed with a genuine musical purpose in mind, which makes it quick and slick to use. Again, the more sophisticated editing options and event-listing are missing and, like *Vision, EZ Vision* has no scoring facility, though Opcode's new *MusicShop* does, and it doesn't cost too much more. The lack of score editing here is more than made up for in the graphical-editing department, which offers controller drawing and shaping as well as note pitch/duration tweaking.

EZ Vision also supports patch names and a neat 16-channel mixer window with level, panning, mute and solo controls. Copious on-line help is available if you need it, and it is one of the few sequencing programs at any price to make use of colour to identify different tracks – this turns out to be quite useful. Sequences are held as letters (A-Z) which can then be organised in graphic blocks in the arrangement window.

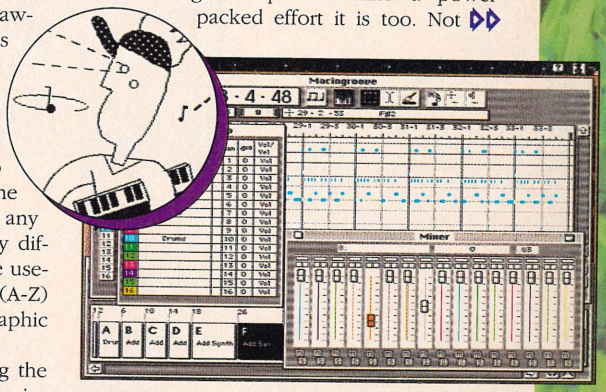
It's an easy way of working, making the program kind on beginners. Exactly the intended effect, really.



◆ **Steinberg's *Cubase Lite* offers score editing, which is okay for you music-reading types.**

Altech *GM Sequencer*

American Altech Systems has been around on the Mac MIDI scene from the early days, though this is the company's first fully fledged sequencer. And a power-packed effort it is too. Not ▶▶



◆ ***EZ Vision* uses colour to good effect, making it easy to identify your individual tracks.**

Budget Mac MIDI interfaces

Unlike the Atari ST, none of the Macintosh family comes with any sort of MIDI Interface as standard. The bare minimum requirement to get started with Mac music-making is a 1 In, 1 Out, 1MHz MIDI interface which connects to one of the serial ports.

These days, many years on from the time when Southworth Systems represented almost the sole contender in the Mac-interface market, there is a jungle of interfaces to sort through (something we'll be doing in depth in this very column in the not-too-distant future). Below is a brief run-down of some of the units currently available.

Below £50

Altech MIDIFace LX (£41 from MacWarehouse)

£50-£100

Altech 613 (1 In, 3 Out, 1 LED – £65 from Arbiter).
Opcode MIDI Translator II (£69.95 – 1 In/3 Outs, LEDs & Thru switch).
Apple MIDI Interface (£60).
Anatek Pocket Mac (1 In, 2 Out – £99.95).
JL Cooper MacNexus (1 In, 3 Out – £75).
MIDIMAN MacMan (1 In, 3 Outs – £62).
MIDIMAN MiniMacMan (1 In, 1 Out – £49).
Steinberg Mac MIDI1 (1 In, 3 Outs plus a bypass switch – £99).

£200-£300

Opcode Studio 3 (2 In, 6 Out, SMPTE support, 19-inch rack-mount – £299.95).
JL Cooper SyncLink (2 In, 2 Out, SMPTE and MTC support – £219).
MIDIMAN MacSyncMan (2 In, 6 Out, plus smart FSK and MTC sync – £275).

Contacts

Apple	0800 127753
Arbiter Pro MIDI	081 202 1199
Harman (for Steinberg)	081 207 5050
Key Audio (for MIDIMAN)	0245 344001
MCM (for Opcode and Anatek)	081 963 0663
Sound Technology (for JL Cooper)	0462 480000
MacWarehouse	081 449 7113

◆ **The simple MiniMacMan, from MIDIMAN, is a plain, honest, 1-In 1-Out MIDI interface.**

◆ **MIDIMAN's MacMan has three MIDI Outs and one In.**

◆ **JL Cooper's SynkLink not only gives you MIDI, it has SMPTE and MTC too.**

Bundles & kits

Various hardware and software manufacturers are joining forces to offer 'General MIDI', or 'multimedia', or 'music starter' kits for the Macintosh, which all offer big savings on the cost of buying separate sequencing software, a MIDI interface and tone generator. Here are some of the leading contenders:

E-mu Sound Engine (GM tone generator/MIDI interface, supplied with *EZ Vision* and *Edit One*) – £555

Yamaha Hello! Music! (GM tone generator/MIDI interface supplied with Steinberg's *Cubase Lite* and *Music Box* MIDI-File-playing software) – £399. See the review in *FM* 15

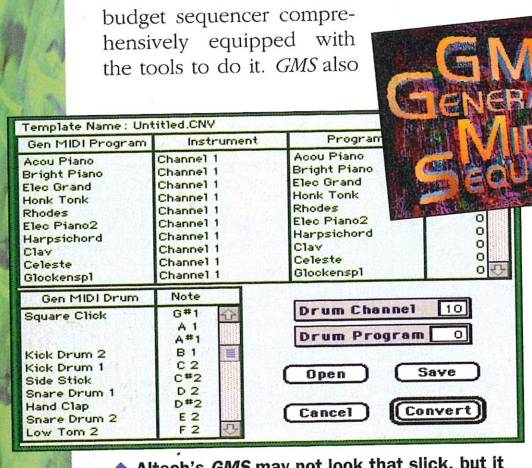
Korg Audio Gallery (GM tone generator/MIDI interface, supplied with *Trax/TurboTrax*) – £399. See *FM* 15 for the review.

Opcode EZ Music Starter Kit (MIDI Translator interface, *EZ Vision, Band-In-A-Box, Book Of MIDI*) – £229.

◀◀ only is it the cheapest and smallest in size of any of the packages here, it is also the only one to have comprehensive, professional editing and up to 100 tracks.

The interface is non-standard as far as Mac sequencing goes, and the use of colour is overpowering, but you get a host of track-editing functions that everyone else has left out to protect their higher-priced products. Since Altech, doesn't have a *'GMS Turbo'* version (at least, not yet), a great many professional features, such as full event-list editing with data-filter, track splitting and velocity offset and duration alteration, are included. The look and feel might not be as slick or 'expensive' as *EZ Vision* or *Cubase Lite,* and there is no graphical arrange or score display, but on the other hand the editing options are far more comprehensive, and it is half the price.

If you're on a tight budget, but need to be able to get 'under-the-hood' and edit MIDI data in detail, then this is the only budget sequencer comprehensively equipped with the tools to do it. *GMS* also enables you to set up instrument group templates, has General MIDI mixing controls and provides a whole collection of utilities and sample songs/drum patterns to accompany the program.



◆ **Altech's *GMS* may not look that slick, but it offers high-power performance at a low price.**

The rest of the pack

Of the remaining few packages available, *Passport Trax* (formerly *Master Tracks Jr*) is the only one with a professional relative and upgrade option *(Pro 5).* At a glance it appears almost identical in layout to *Pro 5* and preserves much of its easy-to-use feel (it has a Track Sheet, Song Editor and Step Editor) and a grouped set of transport controls. However, multi-track record, event-list editing, graphic editing of controller data, and percentage parameter change/max/min limits are among the *Pro 5* features not available on *Trax.* Contact Arbiter Pro MIDI on 081 202 1199 for more on Passport.

> *"Altech Systems' GMS comes out on top for functionality against cost"*

US software house Green Oaks has launched *Rhapsody,* which has yet to appear in the UK. It is intended for "hobbyists with limited budget yet high expectations", is heavily loop and pattern-based, has vertical piano-roll data display and has many features associated with pro sequencers (even a built-in System Exclusive editor/librarian). The US retail price is $149. Green Oaks can be contacted on 010 1 619 434 0823.

Another California-based company new to Mac sequencing is Dynaware, which has launched *Ballade* (also yet to appear in the UK) which is optimised for use with General MIDI or (Roland's) GS instruments. Although mainly score-based, it does have a drum grid-edit system and supports up to 16 tracks. Dynaware can be contacted directly on 010 1 415 349 5700.

Bundling along

There is currently a wider choice of low-cost sequencers and sequencer 'bundles' for the Mac than at any other time, and with the platform finally becoming more mainstream, there is some price-crunching going on between the large Mac retailers (such as MacWarehouse) and the hi-tech music stores such as Turnkey and TSC, which makes for even better deals.

However, you will have to think carefully about exactly what you need, since the recent flurry of GM sound modules with built-in Mac interfaces (currently seven, and growing) and bundled sequencing/jukebox software makes this option very attractive, especially if you have not yet been hooked by any particular sequencer and haven't purchased an interface. Focusing on the software, it seems that all these low-cost sequencers have trimmed away the fat and made compromises in different areas, so make a wish-list (eg, score display, mixing console, easy GM setup) of what is important to you.

If you forget about the bundles and just look at software, Altech Systems' *GMS* comes out on top for functionality against cost. If you just want to occasionally get some of your own tunes together and share and import MIDI files, there's little reason to spend more. Still, if you plan to make a long-term move into composition, bear in mind that the option to upgrade to more powerful sequencers, such as *Cubase* or *Vision,* is of major significance. Also, be realistic in your expectations. If you want pro features, then look up-market.

Nonetheless, these entry-level sequencers should help aspiring musicians go a long way. After all, many hit songs were composed on mid-80's sequencers greatly inferior to the software reviewed here. **FM**

Cubase Lite

£99 ◆ Harman Audio, Mill Street, Slough, Berks SL2 5DD
◆ Tel: 081 207 5050

Verdict

Features

Ease of Use / Setting up

Quality of results

Value for money

Heavily trimmed-down version of *Cubase Score.* Offers score editing, 16 tracks, basic quantizing but no event-list editing.

FUTURE MUSIC RATING 64%

Opcode EZ Vision

£139 ◆ MCM, 708a Abbey Road, Tudor Estate, London NW10 7UW
◆ Tel: 081 963 0663

Verdict

Features

Ease of Use / Setting up

Quality of results

Value for money

Upgrade path to full-blown *Vision,* or low-cost *Music Shop* if you need score printing. Neat graphical-editing and mixer panel.

FUTURE MUSIC RATING 80%

Altech GMS 1.0

£58.69 ◆ Available through MacWarehouse
◆ Tel: 081 449 7113

Verdict

Features

Ease of Use / Setting up

Quality of results

Value for money

Looks clumsy, but is sophisticated. Suits those with GM tendencies with its mixing consoles/customized instrument lists.

FUTURE MUSIC RATING 82%

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8-bit COMPARISON

	MONO		STEREO	
	AZTECH SOUND GALAXY BX II	CREATIVE SOUND BLASTER VERSION 2.0	CREATIVE SOUND BLASTER PRO II	AZTECH SOUND GALAXY NX PRO EXTRA
No Of Sound Standards	2	2	3	5
AdLib	●	●	●	●
Sound Blaster Version 2	●	●	●	●
Sound Blaster Pro II		●	●	●
Covox Speech Thing			●	●
Disney Sound Source			●	●
FM Synthesiser - OPL2	●	●		
FM Synthesiser - OPL3			●	●
Manual Volume Control	●	●	●	●
Digital Software Volume Control			8 steps	16 steps
Digital Bass & Treble Control			●	
Sampling Rate, Recording Up To:	23KHz	15KHz	44.1KHz	44.1KHz
Sampling Rate, Playback Up To:	44.1KHz	44.1KHz	44.1KHz	44.1KHz
Game Port, With MIDI Option	●	●	●	●
Dynamic Filtering For Better Sound	●			●
CD Audio In	●			●
Can Use Microphone And CD During Digital Playback	●		●	●
SMT Board For Better Reliability	●		●	●
Free Speakers	●			●
CD-ROM Interface (AT-Bus)				●
Panasonic Interface				●
Mitsumi Interface				●
Sony Interface				OPTION
CD-ROM Interface (SCSI)				OPTION
Microphone AGC Amplifier	●		●	●
Stereo Microphone Input				●
Software Selectable IRQ, DMA & Address Setting Configuration Retained When Power Off				●
Mixer Support From More Than One Source During Recording	●			●
Built-In Amplifier	●	●	●	●
Stereo Lines In And Out			●	●

16-bit COMPARISON

	STEREO				
	AZTECH SOUND GALAXY NX PRO 16	AZTECH SOUND GALAXY BASIC 16	CREATIVE SOUND BLASTER 16 ASP	AZTECH BUSINESS AUDIO BOARD	MICROSOFT M'SOFT WINDOWS SOUND SYSTEM
No Of Sound Standards	6	6	2	2	1
AdLib	●	●	●	●	
Sound Blaster Version 2	●	●	●		
Sound Blaster Pro II	●	●			
Microsoft Windows Sound System	●	●		●	●
Covox Speech Thing	●	●			
Disney Sound Source	●	●			
FM Synthesiser - OPL3	●	●	●	●	●
Digital Software Volume Control	●	●	●	●	●
Digital Bass & Treble Control	●	●	●	●	●
CD Quality Sampling Rate: Record & Playback Up To:	44.1KHz	44.1KHz	44.1KHz	44.1KHz	44.1KHz
Game Port, With MIDI Option	●	●	●		
Dynamic Filtering For Better Sound	●	●	●	●	●
CD Audio In	●	●	●	●	
Can Use Microphone And CD During Digital Playback	●	●	●	●	●
CD-ROM Interface (AT-Bus)					
Panasonic Interface	●	●	●	●	
Mitsumi Interface	●	●		●	
Sony Interface	OPTION	OPTION		OPTION	
CD-ROM Interface (SCSI)	OPTION			OPTION	
Microphone AGC Amplifier	●	●		●	●
Stereo Microphone Input	●	●		●	●
Software Selectable IRQ, DMA & Address Setting Configuration Retained When Power Off	●	●			
Mixer Support From More Than One Source During Recording	●	●	●	●	●
Option For Upgrade To 16-bit Wave-Table Synthesis	●	●	●		
Stereo Lines In And Out	●	●	●	●	●

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For recording your own vocal samples or sound effects (this microphone is free from Silica with each Sound Galaxy Card).

SOU 9010 **£7.99** +VAT = £9.39

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SOU 9016 **£9.99** +VAT = £11.74

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When connected to the Mitsumi AT-Bus CD-ROM interface on the NX PRO Extra, Business Audio Board or NX PRO 16, it allows connection of the Sony AT-Bus CD-ROM drive.

SOU 9021 **£7.99** +VAT = £9.39

SCSI EXTENSION BOARD

Plugging the Sound Galaxy Extension Board onto the NX PRO Extra, Business Audio Board or NX PRO 16, enables you to connect to a wide range of SCSI CD-ROM drives.

SOU 9028 **£29** +VAT = £34.08

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8-bit MONO

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SOUND GALAXY BXII EXTRA

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  AdLib, Sound Blaster v.2
- FREE Speakers
- Dynamic Filtering:
  For Better Sound Reproduction
- CD Audio In:
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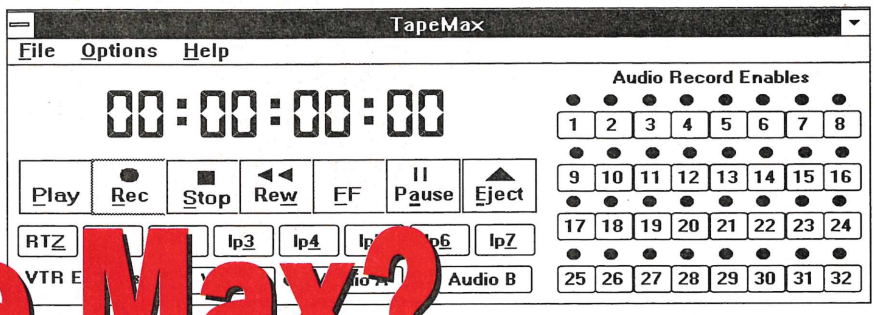
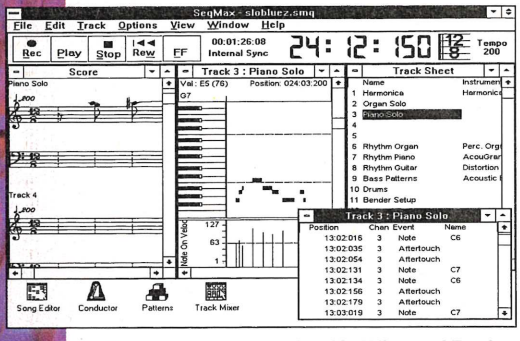
Nigel Morgan looks at *MaxPak*, a lively contender in the PC sequencer stakes.

It's the Max?



◆ *TapeMax's* virtual panel handles MMC messages for your trusty Fostex R8 multi-tracker.



◆ **All together: Score, Graphic Editor and Track Sheet windows in their Vertical Window mode.**

WHO DO YOU KNOW with an automated mixer, a multi-track setup, a posse of synths and an interest in karaoke-style performance? *MaxPak* is a collection of MIDI programs for such animals and runs under Windows on the PC. Originally *Cadenza for Windows,* it's now *SeqMax, LibMax, MixMax* and *JukeMax* – program titles that speak for themselves.

The *SeqMax* sequencer is the heart of *MaxPak*. On opening the Track Sheet window, you decide which mode you want to adopt for recording and organising your material. In addition to the standard linear track, which plays from beginning to end and then stops, you can set up a Loop track, Pattern track, Setup track and Link track.

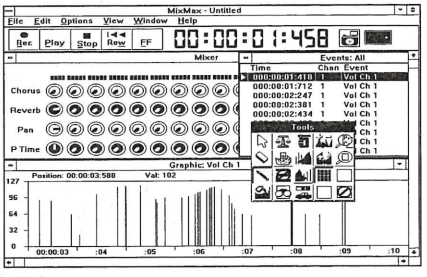
General pattern

Pattern tracks are considered the 'unique feature'. Here you're encouraged to see your music as short sections of material, similar to the way in which you'd handle programming a drum machine.

I think most musicians have moved on from this style of programming – what's needed is a graphic pattern editor. There is a Song Editor, similar to Passport's beat-as-a-block display, but this displays the position of linear tracks only.

The rest of the sequencer operation is standard. There's good graphic editing, with both keyboard and drum-machine displays. For detailed work, the Event List Editor is all that it should be. And, if you're in multimedia mode, you can insert MCI commands to trigger .WAV samples or CD Audio.

Score editing has been added to this version, and it's quite acceptable as an alternative view of the music, but for editing and score production it's not convincing. I'm disappointed that I can't highlight a track on the Track Sheet window, call up Score Editing and immediately see that track – I have to scroll to find it. Not good.



◆ **The *MixMax* mixer simulation (its faders are hidden) and the powerful graphic editor.**

MixMax is an automated audio mixer simulation. You can design your own mixer control panel from scratch, with a good selection of mixer controls and virtual LEDs. There isn't that much automated-mixer software available currently – Mackie (1064) and Soundcraft (Spirit Auto) have yet to offer PC software automation – so *MixMax* is very welcome. It looks good and it works.

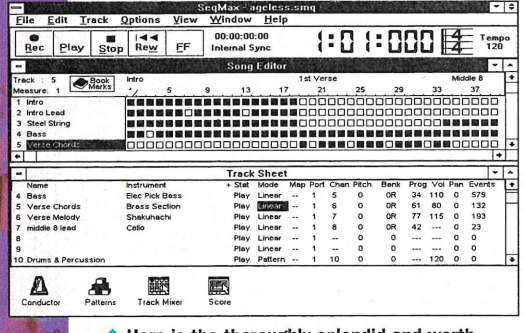
LibMax is a straightforward patch librarian for MIDI devices. All those special dump codes are handled for you via a collection of Instrument Profile files. Load Bank to *LibMax* from your synth and all the instrument patches, complete with their names, appear on the window display. The Program Change feature for making connections to your MIDI patcher is a great idea.

If you can't remember the lyrics when gigging and need to show off the old laptop PC, the features of *JukeMax* extend beyond playing back *SeqMax* files and MIDI files to display any lyrics you may have written into the Score Editor on *SeqMax*.

TapeMax is another module unique to version 2.0. It's a tape-transport panel for any device that responds to MIDI Machine Code (MMC) messages. If you have a Fostex R8 multi-tracker, or similar, this is a boon. The software isn't okay with ADAT yet, but this will be fixed in the next version.

If manual and on-line help is important, the former is disappointing, the latter very efficient. However, Arbiter, the UK distributor for Big Noise, provides a help service.

If you're new to the PC then it's likely you'll be considering *Cubase* and *Cakewalk* as do-it-all sequencers. Both these products are more expensive then *MaxPak* and, ideally, need a fast 386 to function at their best, particularly with score display. *MaxPak* provides an alternative for the MIDI musician with serious intentions, a less than state-of-the-art PC, and who can live without a graphic arrange facility. **FM**



◆ **Here is the thoroughly splendid and worthwhile Track Sheet window and the beat-in-a-box.**

System requirement

IBM PC compatible running Microsoft Windows version 3.1, equipped with 2Mb of RAM and 2 Mb of free hard-disk space.

MaxPak v2

MIDI sequencing suite for Windows PC ◆ £235 ◆ Big Noise Software, UK distributors Arbiter Pro MIDI, Wilberforce Road, London NW9 6AX ◆ Tel: 081 202 1199

Verdict

Features

Ease of Use / Setting up

Quality of results

Value for money

Well-priced, well-engineered software covering a multitude of applications. A good, low-cost sequencing option for PC owners.

FUTURE MUSIC RATING 79%

Alternatively...

***Cubase Score* (£499) and *Cakewalk for Windows* (£256) head the sequencer pack. If you need more sophistication and features on the editing side you'll certainly get it with these programs. Mixer simulation and tape control are there, but the librarian element has yet to become a reality in the release of *Cubase Studio Module* (£159) which is destined to do a lot more.**

◆ *Cakewalk for Windows* from Sound Technology, tel: 0462 480000

◆ *Cubase* from Harman Audio, tel: 0753 576911

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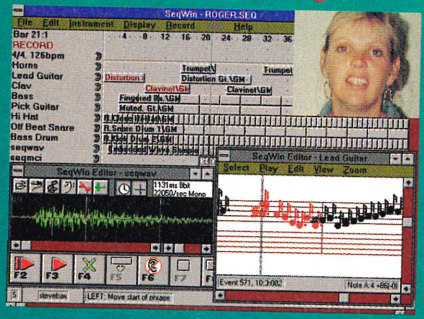

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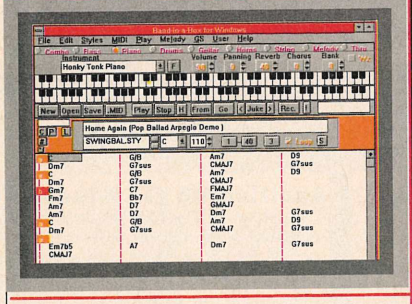

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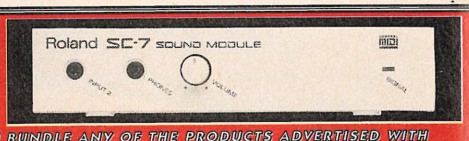

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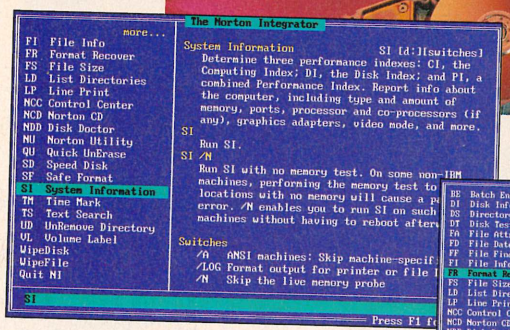
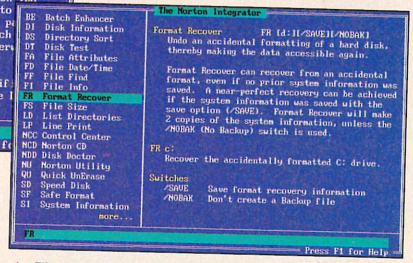




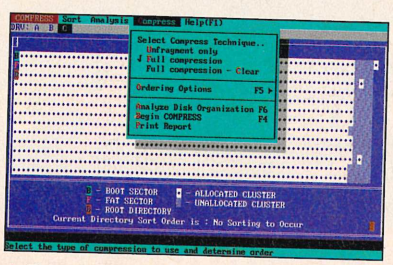
◆ *The Norton Utilities* can help you find out more about your computer and help recovery from accidental formatting of your hard disk.

HAVE YOU EVER wondered about the value of the information saved to your computer's hard disk? Not just programs, but your own files – information unique to you. You may have a complete phone directory, or your personal finance records stored there. Worse still, you may have several musical compositions saved. How long would it take to re-record them? They may have been written some time ago. Will you recall your arrangements? Will they be as good?

I expect you remember reading that you should back-up your data regularly, but is it necessary? Computers are reliable, aren't they? Well, yes... And no. Your music files are stored on a hard disk – a magnetic medium. Hard disks often have a five-year warranty, so can be expected to be trustworthy, but they can go wrong.

Gets your back up

What is backing-up? In computing terms it means making sure you have a fail-safe copy of your data somewhere other than on the hard disk. This means that if your computer blows up when you switch it on tomorrow, you won't have lost your music and audio files. In practical terms this means making a portable copy of your work before you turn off the computer. But what if there's a power failure while you are working? It depends on your budget and how important it is for you to keep working. You might consider getting an uninterruptible power supply (UPS) to guard against mains power failure, fluctuations and 'dips', but these are quite expensive. A simple mains filter would provide protection against mains-voltage 'spikes' – you'll find these made by MK and available from larger DIY stores for about £30.



◆ This hard disk is almost full and nearly fully compressed – I hope it's backed up.

Because most music software doesn't automatically save at preset intervals, make sure you save your work every five to ten minutes or so. This is a good habit to acquire – whatever else you do, don't leave saving your work to the last minute. I know of several people who have switched off without saving and have lost hours of work.

Once you've saved your data to hard disk the files should be copied to a removable source. The simplest way to do this is to save to a floppy disk, but be warned – these can also go wrong, get wiped or be destroyed, so another back-up system is advisable. If you are only working on a few files at a time, you can copy them manually. But if you are handling many files, utility software can be used to automatically identify and then back-up files changed since a particular date. *PC Tools* includes a utility which will do the job automatically for you. You can decide on the type of back-up – full or partial – which directories and files to include and whether or not to compress the files.

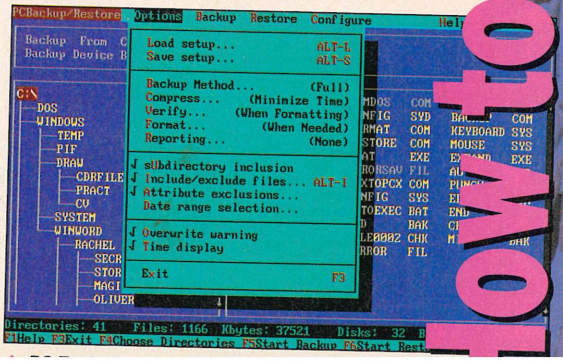
If you are modifying lots of files on a regular basis, you could consider a low-cost tape streamer. These often come with automatic back-up utilities, typically involving alternating faster partial backups with slow, complete backups using three tapes. On day one (say, Monday) you do a complete backup to tape one, on days two to four (Tuesday to Friday) you do a partial backup to tape two, and then on day five you do another total backup to tape three.

A hard time

What do you do if your hard disk crashes? Your best bet is to try a disk-recovery programme and to re-boot from that. Try the *Norton Utilities* suite of programs, using all the data-recovery procedures recom- fail, contact a reputable dealer and find out how much it will cost to attempt a recovery of your data.

If you can't recover your music files using one of these programs, can't afford to pay to have them recovered for you, or they are not recoverable, you will have to re-format the disk and use your most recent back-up copy. Fortunately, both *Norton* and *PC Tools* have some very useful utilities which can help you avoid many disk and file problems, such as 'Undelete' which does pretty much what you'd imagine. The *Norton Utilities* suite includes two additional manuals: The Norton Trouble Shooter will help you diagnose your problem by referring to a list of common problems and/or error messages from DOS and CHKDSK, with 'what to do' solutions for each problem or message. The Norton Disk Companion is a guide to understanding disks. It examines the hardware, then looks at the software that makes it work.

Finally, don't forget that disks and tapes store data magnetically. This means they are sensitive to magnetic fields, so keep your backed-up music files well away from your monitor or loudspeakers. FM



Contacts

◆ *The Norton Utilities*, £149, Symantec, tel: 0628 592222

◆ *PC Tools*, £49, Central Point Software, tel: 0252 877877

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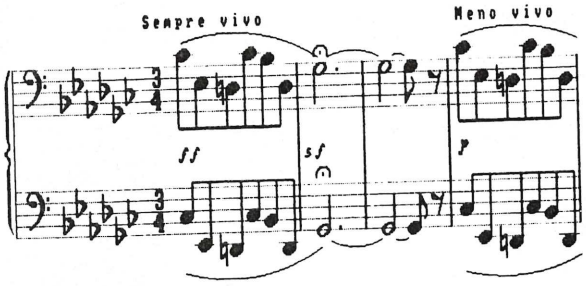

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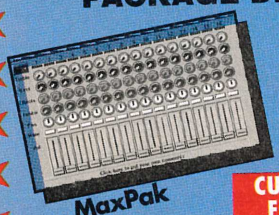
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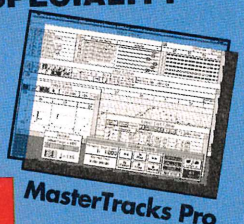
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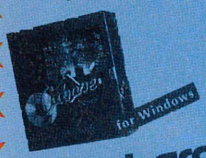

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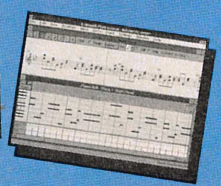

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Darren Irvine and John Kennedy jam along with virtual musicians, courtesy of *FM*'s sister mag *Amiga Format*.

SuperJAMming

BLUE RIBBON SOUNDWORKS' *SuperJAM!* still holds a unique position among Amiga software. It has enough in the way of 'artificial intelligence' to provide you with a group of virtual band members who will follow your lead. And, you lucky people, it was given away FREE with the Christmas 1993 issue of *FM's* sister magazine *Amiga Format* – get your copy from the back-issue ordering service carried in *AF* every month.

In its out-of-the-box form, *SuperJAM!* makes use of the Amiga's internal audio hardware to generate sounds. With a lot of jiggery-pokery, Blue Ribbon has managed to coax an amazing 16 simultaneous sounds out of the hardware. Let's see how you can get the most out of this program with a few jammy tips.

1 MIDI magic

If you have one of the supported instruments, updating your band to MIDI is straightforward. Open the Band Window and then use the pull-down menus to load your new settings from the Band drawer on the *AF* coverdisk. For MIDI keyboards and modules not mentioned by name, the best bet is to load the Roland MT-32 or General MIDI settings and then do some delicate editing.

◆ Get yourself a copy of *SuperJAM!* for the cover price of *Amiga Format* – giveaway city!

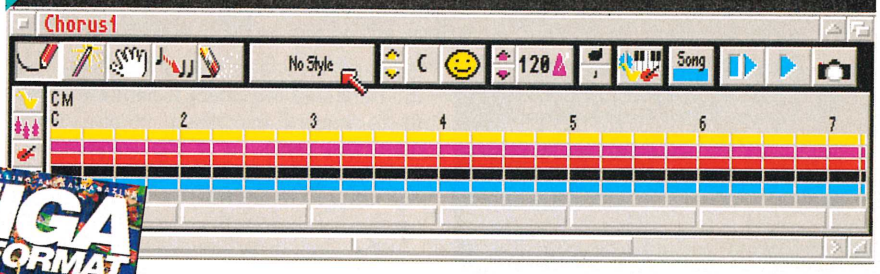
Click on the preset name to obtain and scroll through the choices to select a suitable sound. The names may not match the sounds coming from your equipment, and if this is a problem you should use the Edit Preset menu option to enter a more appropriate label.

If you click on the Band Member icon, a small requester appears with a slider to quickly choose the correct preset. Also important is the Volume->Velocity gadget: if this isn't highlighted, you won't be able to balance the relative volumes of the band members by moving their icons up and down the grid.

2 Create a section

Songs in *SuperJAM!* are composed of sections, which are basically groups of chord progressions, although it is possible to add individual notes to a section. To create a new section, open the appropriate window by clicking on the Section icon in the Keyboard window. First you're prompted for a name to give the section, and it's probably a good idea to make this meaningful, like 'verse' or 'chorus'. Notice that all the information regarding key signature, tempo and style has been transferred from the Keyboard window to the Section window.

2 ◆ Open the Section window by clicking on the icon in the Keyboard window. You'll need to give it a sensible name, but stick to eight measures for the time being.

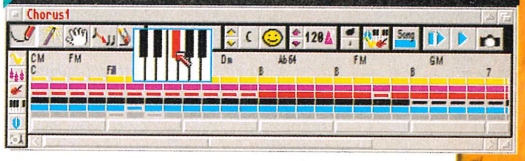


3 Chord changes

The Section Edit window consists of a number of icons, below which is the data area into which you enter any chord changes that you require. You can enter chord changes on the fly by clicking on the Play icon to start the section playing, and add chords by playing the *SuperJAM!* keyboard (using the mouse), or using the bottom octave of your MIDI keyboard. You can also enter chords by clicking with the mouse pointer in the correct part of the top line of the data area. While you hold down the mouse button, a chord list will pop up. If you click in the bottom line of the data area, a menu enables you to select a pattern variation such as a break or a fill.

Below the data area are the section blocks, which are six coloured lines of rectangles, each line relating to a member of the band – melody, strings, guitar, piano, bass or drums. Clicking in this area with the magic-wand pointer causes the appropriate section block to appear or disappear, signifying whether or not that instrument will play in that part of the section. By default, all the section blocks are visible, indicating that all the instruments play during every part of the section. In this manner the structure of the section is determined. For a song intro, you might want all the instruments to start at different times for a fugue-type effect, and for a middle-eight you might want just the drums, piano and bass.

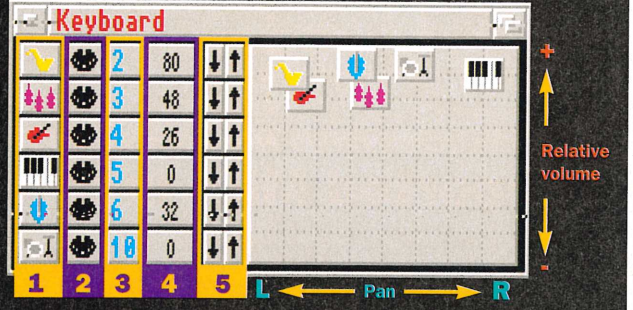
3 ◆ Click in the area above the colour blocks to add chord changes or select the pattern variations.



4 Add melody

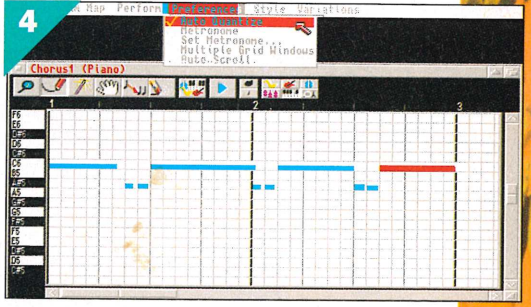
As well as chord changes, it is also possible to add a melody into each section. To do this, use the Snapshot icon and select an instrument to customise. To enter a note, click at the place where you want it to appear. While holding down to mouse button, drag to the left and right to decrease or increase note duration, and drag up or down to increase or decrease note volume. You can use the magnifying glass icon to view all the parameters of any note on the Snapshot screen, whether they are ones that you ▷▷

1

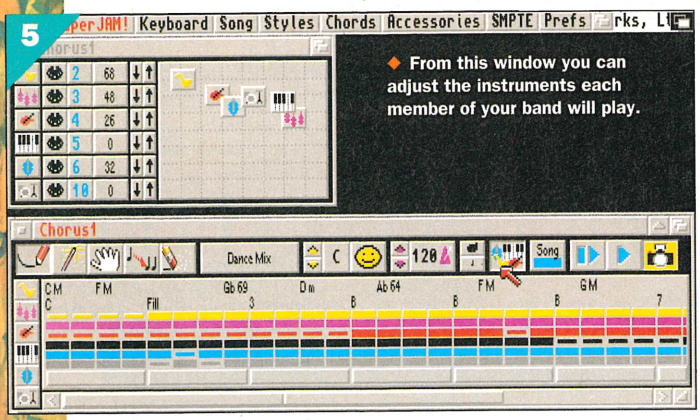


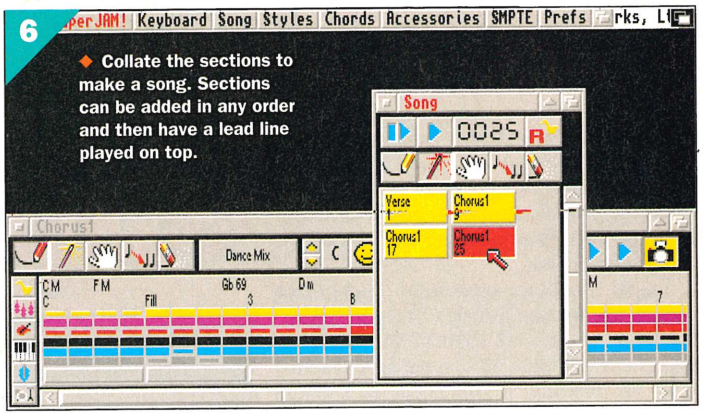
◆ Use the Band Editor to drop the Turbosounds in preference to MIDI instruments, if at all possible.

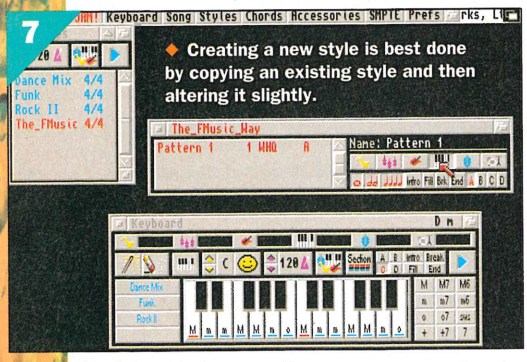
4



◆ Add a melody to the section using the Snapshot window. You can either use the mouse or the Amiga keyboard. An external MIDI keyboard







added yourself, or are notes already placed in the measure by *SuperJAM!*. While in the Snapshot window, you can select which instrument to customise by clicking on its icon. Note that when modifying drum parts, drum instruments are listed instead of piano notes. If you find entering notes in this way a bit strained, you can also use the Play icon to start the measure playing and enter notes on the fly from the *SuperJAM!* keyboard or via MIDI. Notes can be locked to the snapshot grid by selecting Auto Quantize from the Preferences menu.

5 Change the band

It's possible to change the band for each section that you create. To do this, click on the Band icon, beside Song, and the Band window will appear. Use this to change the internal sample or the MIDI channel/Program number for each band member. This information will be saved with the section, enabling different sections of a song to be played on a different set of six instruments. Carry on like this until the various sections of a song have been defined.

6 Create a song

Open the Song window by clicking on Song. The pencil is used to add a new section to a song, the magic wand opens an existing section of the song for editing, and the Hand and Duplicator icons work as before – moving or copying groups of sections. The eraser, as if you couldn't have guessed, is used for removing sections. Additionally, there are Load and Save icons for transferring sections to and from disk.

When you have constructed your song from the relevant sections, you can add a lead line by clicking on the Lead Record icon. The song will start to play and, as usual, you can add notes from the *SuperJAM!* keyboard or your MIDI keyboard. This is another step where the Auto Quantize preference comes in handy.

7 Create your own style

It is possible to create a new style from scratch but, because of the vast array of options available to you, it is infinitely easier to take a copy of an existing style and modify it to suit your own requirements. The first step is to open the Style window by clicking on the Style icon. Then select Duplicate to make a copy of the style that is closest to what you want to achieve. To edit a given style, double-click on it in the list of styles.

> *"You can be sure of avoiding any 'machine-feel' in your music"*

Each style in *SuperJAM!* is composed of a number of patterns. The individual Style window you have just opened shows a list of the patterns associated with the style. Each pattern has a number of attributes associated with it, which determine the way in which *SuperJAM!* picks which of a style's patterns to play at any given part of the song. These represent the following:

W – Use pattern on measures with chords only on whole notes (first beat of bar).
H – Use pattern on measures with chords on half-notes (every other beat).
Q – Use pattern on measures with chords on quarter-notes (every beat).
I – Pattern is an intro.
F – Pattern is a fill.
B – Pattern is a break.
E – Pattern is an ending.

For example, a pattern with the 'W' attribute set would be picked by *SuperJAM!* for a part of a section where the chords are not changing quickly, while a pattern with the 'Q' attribute would be chosen for a section with a rapidly changing chord progression.

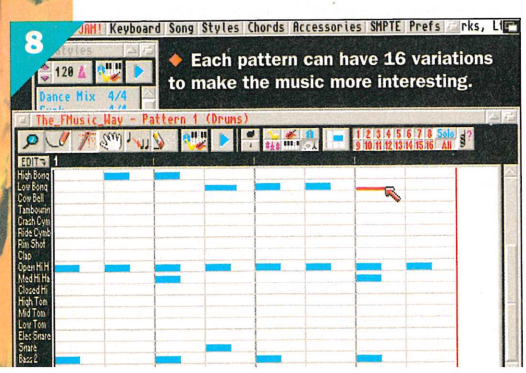
You can define as many patterns as you require for any particular style. In addition to this, each pattern has 16 variations which *SuperJAM!* randomly selects between when using the style to play a section or song.

8 Pattern recognition

To set up or change an instrument, click on its icon in the Style window. The Pattern Grid window will open, which is similar in looks and operation to the Snapshot window used for customising a measure in the Section Editor. The icons will work in the usual way, enabling you to add, delete or change the status of notes, drums and chords on the grid.

The main difference here is the 16 variations of each pattern. The idea is to select *all* variations by clicking on the All icon, and then put in the basics of your pattern. Then select the variations individually by clicking on one of the variation icons, and make slight changes to each one. This way, when the style is playing, there will always be subtle changes in the music being played, just as if real musicians are producing it. Combine this with the changes for intros, breaks and fills, and you can be sure of avoiding any 'machine-feel' in your music.

You will notice that you have to use the Purpleizer icon to get *SuperJAM!* to enter bass and lead notes that are not part of the root chord. Once you have completed all the variations for each pattern, you can go back and use your newly created style in the section editor, and ultimately as part of a song. Neat FM



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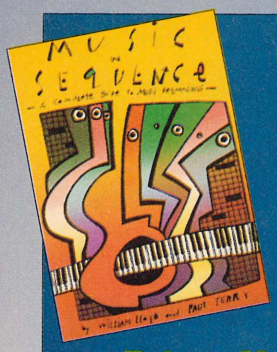

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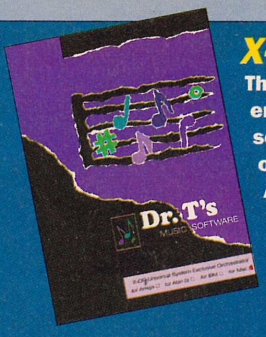

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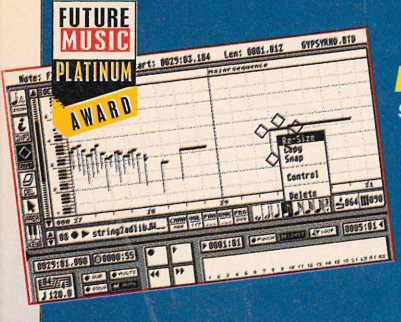

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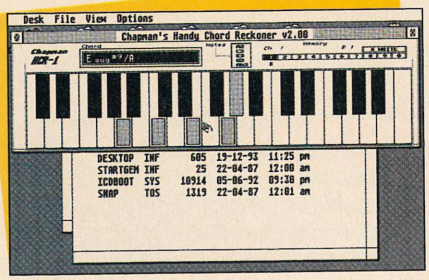
Soft options

Widgets. We've got some widgets. Some lovely widgets. Some widgets we have got. Dave Robinson looks at three new ST accessories.



◆ **This is how Chapman's *HCR* appears on your desktop. The chord shown sounds bloody awful.**

WHAT HAVE YOU GOT if you have D, A and C# in one hand, and F#, G# and D in the other? Apart from big hands and a tired old joke, you've got the chord of Dmaj7#11. If you are constantly wondering what new chord you've discovered, Chapman's *Handy Chord Reckoner* could come in, er, handy.

This simple program can run by itself or as a desk accessory. It presents you with a three-octave graphical keyboard (looks like a Casio VL-Tone to me) on to which you can drop notes using the mouse, or by playing your synth. Chords containing up to five different notes can be entered. Hit the right-hand mouse button and the chord is played back, while the chord name is displayed in the little window. The *HCR* can recognise up to 3,000 different types of chord, apparently; but attempt to enter anything too tricky and you'll just be ignored.

Chords can be saved in one of ten boxes: click on a box (top right of keyboard) to save, and again to play it back. There are ten banks of boxes: use the cursor keys to scroll through. Banks of chords can be saved (hit [s]) and loaded again later (hit [l]).

Chapman's *HCR* is fairly straightforward to use. More drop-down menu options would have made life easier though, especially for Save and Load commands. It's easy to wipe chords from the boxes by clicking on the left-hand mouse button (thus recording a null chord) instead of the right, when trying to play back. This can be remedied by familiarity with the controls.

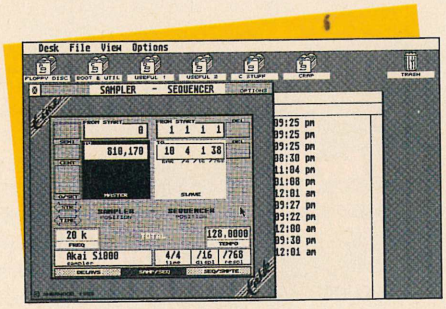
Also, the three-octave range displayed corresponds to MIDI notes 36 to 72, the bottom three octaves on a five-octave keyboard. The middle three octaves, 48 to 84, would have been more appropriate for the musician trying out accompaniment ideas.

Chapman's *HCR* is only 15 quid, so if you are looking for an interactive way of learning about chord structures you could do worse. The PC version, another tenner, features arpeggiation and frequency analysis. Pity they weren't included here, really.

Handy Chord Reckoner
Hmm... Software, 19 Kenley Road, St Margarets, Twickenham TW1 1JT
◆ Tel: 081 892 1970

Snappy talk

Time is inextricably linked with music – tempi, SMPTE, sample lengths, frequencies – you can't get away from it. It pays, therefore, to manipulate the maths of minutes and seconds if you want to get through tedious calculations and on to composition.



◆ **Aleph's *Time Talk* utility. Here's how to turn your lead vocals into *Bagpuss*' Charlie Mouse.**

Time Talk is a desk accessory for the ST, written by John Sherwood of Aleph. It costs £79 (£89 for two copies) and consists of three separate screens, dealing with all those brain-fuddling delay, sampler-sequencer and SMPTE-sequencer time calculations.

The default Delay-time screen is the easiest to get your head round. Dial in your desired tempo, click on the appropriate note length, and *Time Talk* calculates what setting (in milliseconds) is required on your delay effect, so that individual delays are exactly in sync with your music.

The second screen is more confusing. Say your tempo is 130bpm and your two-bar drum loop, sampled at 44.1kHz, is 100,000 sample points long. How much do you need to retune the loop to fit into your track? The Sequencer-sampler screen is where you find out. Click on the Stretch icon to discover the percentage you need to time-shift your sample by.

From sample data in one column you can calculate (or drive) sequencer timings in the other, or vice versa by interchanging between the master and the slave. This is the least attractive part of *Time Talk*. You must drag a small Master title-bar from one column to the other – a toggling switch would have been preferable.

The final screen is where you really have to concentrate hard. Here you are presented with three columns for tempo, SMPTE and sequencer positions. With some perseverance – down to the nature of the beast rather than the software – you can calculate up to five changes in speed for the syncing of a piece of video to music. Again, one master can drive only one slave, so one column will remain inactive at any given time. Toggling between the columns would not be so effective here, so the title-bar drag device seems fairly sensible.

Nothing has been forgotten – you can alter the resolution of your sequencer, the SMPTE frame rate, the time signature, even the sampling frequencies, selected from those relevant exclusively to your model of sampler (there's a pop-up menu with a list of ten of the most popular included). An Options menu enables loading and saving of set-ups, and you can reverse the operation of the mouse buttons, keeping Emagic's *Notator* and Steinberg's *Cubase* users happy.

You can calculate delay times yourself (see Interface, *FM* 10), so it's not worth buying for that facility alone. But for ST-based musicians who work extensively with film or sampling or both, and are tired of time-consuming, hit-and-miss syncing, *Time Talk* is a must. Stop press! A version without the SMPTE gumph is now available for £49. **FM**

Time Talk
Aleph, PO Box 3083, London N1 8NZ
◆ Tel: 071 704 9191

◆ **Y-NOT's editor includes preset sounds GiveItMe, Horny and Hurt Me! Oo-er missus, and so on.**

Potato patch

In case you needed more prompting, Yamaha is now distributing Y-NOT's excellent *TAKE500* ST editor/librarian for the multi-timbral TG500 tone generator. The comprehensive program enables editing of all aspects of the TG500's sounds: single Voices, larger Performances, well-endowed Multis, plus all the effects and global parameters. You can play back your edited sounds on a mouse-driven graphical keyboard, and there's a bountiful librarian with a storage capacity as big as your hard drive. It's packed with helpful and clever functions like Kill Doubles (removes multiple instances of a Voice) and Alphabetize (arranges voices in alphabetical order), and comes complete with on-line help (which can be disabled to save memory) and a bank of patch settings, bizarrely called 'Potato'. There's even a German ReadMe manual as well as the English one. *TAKE500* puts some other editors to shame, and what's more it's completely free! Yamhurrah!

◆ **Yamaha 0908 366700**

The Blue Notes

Lo, and we did look upon your correspondence and saw that it was good. Yea and took we your questions, opinions, demos and ads and did print them...

HERE'S YOUR quick guide to the Blue Notes – the squodge of *FM* packed with information, advice, bargains, contacts and cyan-flavour ink.

◆ Interface, starting on this very page, is where you can find all the solutions to your music-technology problems. Write to the address in the panel below and pose your musical posers to our panel of techie experts.

◆ Air your views by writing to Howl round, our regular letters section, on page 96.

◆ If it's advice on your music that you need, take a look at our Reader Demos section on page 98. Send in your recordings for an impartial view on your sound and songs. Fill in the form and send it in along with your tape. Or, if you've a demo to sell, turn to Exposure on page 101. Take out some free ad space so other *FM* readers can hear the music that you're making.

◆ Find out which *FM* carried which review with our product locator on page 103.

◆ The *Future Music* Buyers' Guides, updated every month, are an invaluable source of information on currently available equipment. This month we're looking at sound and studio gear – synths, samplers, mixing desks and stuff. And don't forget our regular *FM* Top 10 of used gear. The buyers' guide starts on page 104.

◆ Need to sell some gear, or are you looking for a second-hand bargain? Turn to page 119 for our *free* reader ads section.

The wise men came unto the Interface pages, where assembled they and smote thy problems mightily.

Interface

How can a light that burned so brightly...

...suddenly burn so pale? Ah, yes, Mr Garfunkel, a true reflection of your own life, some would say. After all those 60s successes with Mr Simon, topped by the cartoon bunny bonanza of *Watership Down*, you've been a little bit quiet of late, haven't you? Perhaps the likes of Urban Hype, Smart E's and Shaft (they produced the classic tracks *A Trip to Trumpton*, *Sesame's Treet* and *Roobarb and Custard* respectively) should have learned from your experience. Mess with animation and goodbye career.

Luckily, and rather tenuously I might add, the Interface panel is highly animated and is positively bristling with answers to your questions. We've made a New Years' resolution to help you in every way possible, as long as you don't ask questions like "I'm a bit new to MIDI, please can you tell me everything about it?". There are books available for answering that kind of thing. And no phone calls, unless you are particularly famous. Got that? Right then. And write, then (I love that one) to:

Interface, *Future Music*, 30, Monmouth St, Bath, Avon BA1 2BW

ST or Falcon?

Q I had an Atari 520 STFM upgraded to 2Mb, but it packed up and was not worth repairing. I then bought a 4Mb Falcon with 65Mb hard drive, but had nothing but problems with it.

Now I have nothing but a dilemma. Do I buy a 4Mb ST and 200Mb drive for about £500, or do I go for another Falcon and keep up with technology? What benefit does the Falcon have over the ST, forgetting about hard-disk recording? I use my computer mainly for dumping patches and recording MIDI.

Karl Schieritz, Bonnybridge

A Twice bitten, thrice shy, it seems. If you really are not interested in hard-disk recording, then you have to plump for the ST. Look at it this way.

ST Barrowfuls of cheap software; loads of retailers of ST-related products; it has been the studio MIDI computer for years; Steinberg's *Cubase*, the world's leading ST sequencer, costs around £500; and it's a reliable machine.

Falcon Still very little software around; not many retailers and distributors supporting the machine; *Cubase Audio* has only just arrived and it costs £799. No-one could deny that the Falcon had teething troubles when it first arrived, but most Falcon followers would say that all those bugs have now been removed. Based on *FM's* encounters with the Falcon, this claim appears to be correct, certainly as far as hard-disk recording is concerned.

For your needs, it's got to be the ST. Incidentally, you may or may not know that Atari has just launched the 64-bit Jaguar ing on stealing fire from the giants of Sega and Nintendo, do you think it's going to pay much regard to furthering the development of the already struggling 32-bit Falcon?

Stunted evolution

Q I own an Evolution EVS-1 and have run into problems. It works fine until I try to send patch changes to any of my MIDI equipment (Roland 626, ART Multiverb, Yamaha DX27), in which case the EVS-1 goes haywire, changes all its own patches (regardless of MIDI channel) and generally sulks. I know the EVS-1 is to blame – can you help?

Liam Fahey, Exeter, Devon

A It seems that your EVS-1 is stuck in Omni mode, at least as far as patch changing goes. This points to either a very poor program-changing implementation, user error in setting up a program-change map, or a system-software fault. Double-check your manual's MIDI implementation chart and the section on program changing. Information on the EVS-1 is scant since the manufacturer seems to be keeping a low profile, despite assurances that the company is still going. Sound Technology (tel: 0462 480000) distributes and services the EVS-1, ▷▷

Maplin muck-up

We've been printing the contact number for Maplin Electronics as 0702 554171. Please note that this is for trade enquiries only: retail customers should call 0702 554161. Incidentally, in the September 1993 issue of *Electronics, The Maplin Magazine*, there's a feature on making your own MIDI scanning module. This can be used as a MIDI Out retro-fit. Call Maplin (on 0702 554161, don't forget) for more information.

◆ ***Electronics*** **– the bodger's favourite monthly mag.**

Music – er, what?

Q Here's something you could do to fill a page or two. I get stuck with which notes, bass, scale and melody go with which chord. I find it hard to understand how music goes together: when you read things like 'cycle of fifths', what does it mean? How about a series on understanding music?
Karl Schieritz, Bonnybridge

A *Future Music* is here to tell you how, when, where and why to use music technology. We are not here to tell you what or how to play – that's your part of the bargain. If you want to know about music theory, *FM* recommends *The Right Way to Read Music* (ISBN 0 7160 2008 4), only £3.99 from Elliot Right Way Books (tel: 0737 832202).

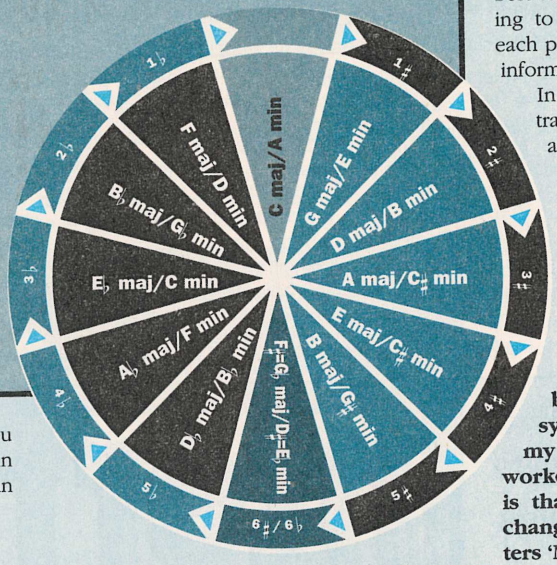
There are never hard and fast rules as to what note goes with what chord. Just play whatever you feel, man! If something sounds wrong to you, then experiment until you find something else that feels okay.

Seeing as you asked specifically about the cycle of fifths, here's an explanation. It's not some arcane Druid conclave. It is, in fact, a nifty way of arranging the 12 major and minor keys in a circle – see the diagram to the right.

Starting with C major (or A minor) and moving clockwise, each subsequent key signature gains a sharp until F# major is reached. But now we're up to six sharps, so it's far more convenient to start using flats. As we proceed around the circle, flats are lopped off until we arrive back at C major.

By the same token, if we travel anti-clockwise around the circle, key signatures gain flats, we change to sharps, then fizzle out back at C major.

Moving in this direction is useful for planning modulations – key changes – because each tonic key becomes the dominant of the next. And what does all that mean? Buy the book.



so get in touch. It is possible that you may have an old version system ROM in your machine which behaves strangely in certain circumstances.

File farrago

Q My setup consists of a Roland D-5, Boss DR-550, Yamaha DX100, Yamaha DSR2000 and Akai S01 sampler driven by a Yamaha QX1. In the sampler's manual it says a disk can contain a maximum 64 files – how? Also, is it possible to select program numbers from any file on the disk without having to reload?
Michael Eade, Leatherhead, Surrey

A According to Akai, it is theoretically possible to get 64 samples on to one S01 disk if they are sufficiently small, but the practical reality is usually no more than 32 because of the amount of disk storage space required for even moderately sized 16-bit samples. Also, it isn't possible to trigger a program that isn't in memory, or even to force a disk program to start loading via a MIDI message (though this latter function is possible on the top-notch members of the S-series, such as the S3000/3200).

It sounds like you've come across the inherent limitations of the entry-level S01. Fine machine though it is, a SCSI-equipped sampler with hard disk is what you need for more storage and advanced auto-loading features. Start saving.

Which way now?

Q I am 16 years old and will be leaving school in June of next year. The trouble is, I don't know what to do then. I like to think of myself as a 'semi-pro' (keyboard-based) musician and would like to pursue music as a career, either on the performing or the technical side – sound engineering, etc.

What kind of college course do you think would accommodate people like me, and do you know of any, preferably around the Birmingham area? I would be very grateful if you could help me because anyone else (including careers advisors) I've asked has been of no help.
Sean Barry, Birmingham

A The course you want is one that is broad based, covering both the performing side of music but also including sound engineering. Ideally, it should offer a lot of practical performing and recording tuition, and also help to widen your horizons generally. There are many colleges of higher education offering either a HND (Higher National Diploma) or degree in aspects of performance, sound engineering and performing arts in general.

There are further education colleges up and down the country that offer a BTEC course at National Diploma level in either performing arts or popular music, but it is best to check them out individually by writing to them and having a careful look at each prospectus. Your local library will have information on the courses available.

In your area, Sandwell College concentrates on the recording and engineering aspect while Kidderminster College runs a course that covers both performance and recording.

Buffer bugger

Q I own an Atari 1040 ST running [Software Technology's] *Sequencer One* plus the Roland JD-800 and R-70 Human Rhythm composer. I have been trying all sorts of methods to synchronise the drum patterns with my sequences, but nothing has worked so far. All that seems to happen is that the settings on the JD-800 are changed, and the R-70 periodically registers 'MIDI Buffer Full'.
Daniel Daukes, Alresford, Hants

A To synchronise two MIDI devices, such as the Atari and the R-70, decide which one is the 'master' and which is the 'slave' as far as the timing is concerned. One instrument sends out MIDI clock pulses to which the other 'listens' and reacts accordingly.

Try the following: look down the MIDI menu of *Sequencer One* and change Sync to External, having first ensured that your song is ready to begin at bar 0. Assuming the MIDI Out of the R-70 is hooked to the MIDI In of the Atari, and the JD-800 is linked In from the MIDI Out port, as soon as you hit Start on the R-70 the whole system should run in perfect time – *Sequencer One* is taking its tempo from the R-70. You'll also find that the Start, Stop, Pause and Continue controls will work together in perfect time.

Pro poser

Q I have a question concerning getting a better and more professional sound from my equipment.

Feedback

All at C

Graham Owen of Basingstoke writes in response to several Interface questions.

"I was going to write last month in response to one of your letters (Junction dysfunction, Interface, *FM* 11). I have also had problems with a Thru box from Maplins: most of my problems were with a Casio VZ8M which reported MIDI errors on data it received via the box. I eventually abandoned the unit and returned to a MIDI daisy-chain.

"The same reader also asked about info on FM [Yamaha's frequency-modulation synthesis] programming. I would suggest looking at *A Synthesist's Guide* Noyes and Daniel Shklair, published by Amsco. This book has a lot of specific Yamaha DX7 examples.

"With reference to the letter about MIDI programming on PCs (Mind your language, from RC Grainger of Solihull, *FM* 14), unfortunately *C Programming for MIDI* is out of print (I tried to get a copy). For sequencing-specific information, *MIDI Sequencing in C* is fine, but it does refer to *C Programming for MIDI*.

"With regard to libraries that can be used with Quick Basic, only a few assembler routines would be required; these are certainly available freely in the public domain.

"I'm not sure what conventions Quick Basic uses, but I suspect that the examples in the *Voyetra Programming Manual* could be modified so that they can be called from Quick Basic.

"Of course, this type of low-level programming is

Teisco shopping again

Analogue expert Peter Forrest writes: "You jumped to the wrong conclusion in telling Chris that he was talking about a Teisco 60P not a 60F (see Off his Teisco trolley?, Interface, *FM* 13).

"Teisco/Kawai not only produced two preset monosynths – the 60P and 100P – but also two fully variable monos – the 60F and 100F. A 60F, in one piece and working okay, is well worth having. Control-voltage In (at one volt to the octave) and gate In mean that you can run it via any MIDI-to-CV convertor. The sounds aren't bad; although it only has one oscillator, it has pulse-width modulation and variable delay on the LFO. Plus, as well as 64' on the oscillator, it has 'LOW' – a bit like 11 on an amp?

"£95 for one that's in perfect nick seems right to me. They're not going to get much cheaper."

Boxing clever

Q I am about to enter the world of MIDI by buying some new and used equipment that I intend to use in a live situation. Because I am not exactly MIDI compatible, I wonder if you could answer some questions.
1) Will songs arranged with [PG Music's] *Band-in-a-Box* V5.13 on the Atari STE save to and play back from the Alesis Datadisk?
2) Likewise for saving sequences from the STE to Datadisk?
3) Back to *Band-in-a-Box*. I've read reviews, but what sound source is used for the accompaniment? Can you use any MIDI keyboard and just amend the Program Change number to suit?
Wayne Gardner, Salisbury

A The Alesis Datadisk stores MIDI data in its own sweet format which is can be read by nothing else but another Alesis Datadisk. So the answers to questions 1 and 2 are no, and no again.

However, you can connect the MIDI Out of the STE to the MIDI In of the Datadisk and re-record the song on the Datadisk as it plays.

As for your third question, *Band-in-a-Box* is compatible with all MIDI gear and it's simply a matter of setting up Program Change numbers for the sounds you want, and setting up a similar page for the drums as well.

If you want to use your own MIDI files in a live performance, you could try the following. *Band-in-a-Box* saves in MIDI file format so if you buy, say, a Yamaha MDF2 or Roland Sound Brush file player you could format a disk on either of these, place it in the STE and save directly in MIDI file format from *Band-in-a-Box*. It would then be ready to play live.

◆ **The Alesis Datadisk uses its own recording format, so sequence data must be played in 'live' from an external sequencer via MIDI.**

Basically, my synth, drum machine and modules are mixed through a Studiomaster Diamond 16:2 mixer straight to stereo cassette, but the sound I get isn't 'up-front' enough and doesn't have enough energy compared with commercial dance music.

I've tried a 7-band graphic on the full mix, and also a BBE Sonic Maximiser, but although there's a difference it still isn't really any more up-front or punchy. Both devices have also been tried on individual instruments, but it appears I can't treat enough sounds – I can only do two simultaneously. Any suggestions would therefore be gratefully received.

Also, do you know of any public domain or shareware editors or sounds for the Korg M1 and Cheetah MS6?
Lee Archer, Wigan , Lancs

A On your last point, there is a fabulous M1 editor by Peter Sturm which we recommended in *FM* 11. The MS6 is a little more elusive. Cheetah maintained (before its music-equipment-manufacturing division disappeared) that there were people developing editors, but their efforts have yet to see the light of day. If anyone has such an editor, write in and let us know. Try LAPD on 0773 761944 or MTS on 0983 756956 for public domain software or scan the extensive list of PD libraries in our sister magazine *ST Format*.

There are many reasons why your sound may not be so hot. In general, it is the source of the sounds that is the critical factor. Are we to assume that the M1 and MS6 are part of your set-up? The M1 has a superb track record and can produce very punchy sounds, so the next factor has to be the way you are sequencing. Are you using the internal sequencer on the M1, which is not terribly user friendly?

Factors like velocity and compression can help when trying to put 'punch' into a track. A sequencer, such as Steinberg's *Cubase* or Emagic's *Notator* – or any mid to upper-price computer-based sequencer – which offers such facilities would help to lift your tracks from the mundane. Also, try some new drum sounds for the M1 – they're available on PCM cards.

Another factor may be the amount of noise added by your system. The desk you mention, while not in the pro league, is adequate. If, however, you have several channels on full gain with the faders fully open, they will add background noise to the recording. This, coupled with the noise that may be introduced by your cassette recorder (when did you last clean the heads?) all add up to lacklustre recordings.

Effects make a lot of difference and, given the way you are working, a rack of effects would be useful. A compressor and 'aural enhancer' will help, along with a small graphic and a couple of reverb units – check our head-to-head reviews of multi-effects units in *FM* 4 and 11.

Modal mangle

Q I have a Boss DS-330, Kawai K1 and various other bits of kit sequenced on Gajits' [now Software Technology's] *Sequencer One* running on an ST. I have edited the 330's voices in Single mode, but find it impossible to dump these into Multi mode because ▷▷

On the right track

Q I have a problem. I am looking for something to record my music on but can't make my mind up as to which format to use, 4 or 8 track. I can afford brand new 4-track gear or a second-hand 8 track, but would love 8 track because I don't feel 4 track is sufficient. Can you tell me:
1) With 4 tracks getting better all the time, is the quality now up to that of 8 track, or does it still sound compressed?
2) Does Yamaha's new MT8X give better or worse quality than present 4-track machines?
3) If money was no object, what would be the world's best-sounding 4 track?
Graham Kirkman, Fife

A The quality of 4-track cassette recorders has improved steadily over the years. Since we are still in the realms of magnetic recording here (not digital), the rule of thumb is that the more tape area per track the better the sound quality. Thus a high-speed 1/4-inch (or, even better, 1/2-inch) reel-to-reel tape machine should produce a better result than a comparable cassette machine. An 8-track cassette machine in good condition, however, will produce better results than a worn-out 8-track reel to reel. If you are buying second-hand, bear in mind that the heart of any tape machine is the record and playback head, and with many budget-priced 8-track recorders the cost of replacing these is almost the same as buying a new machine.

Compromises have to be made on the quality of the components to keep machines of this type within a feasible price bracket, so noise reduction (dbx or Dolby) is essential for decent results.

The feeling of compression that you get probably stems from this, but it does not follow that all 4-track cassette recordings sound boxy and compressed. Factors such as room size, effects used, EQ settings, microphone type and placement, recording tape and signal-to-noise ratio all play their part in the final result. Whether or not the Yamaha MT8X outshines current 4-track machines is really something you should let your ears tell you.

The best 4 track would probably be a tapeless one (okay, it's a smart answer, but true). In other words, a direct-to-hard-disk recording system where there is no noise at all and editing is achieved seamlessly and rapidly on-screen. This would assume that the system's digital-to-analogue conversion is noiseless, though.

On the other hand, some of the greatest and most innovative recordings of the 60s were made on 4-track reel-to-reel tape machines, and nobody complains about The Beatles' recordings sounding over-compressed.

◆ **See the review of Yamaha's 8-track MT8X recorder in *FM* 15.**

Mister Blue Sky

◆ Akai's S950: read about its merits, and its similarity to trousers, in Department S, *FM* 13.

Q I have very limited access to a friend's Akai S950 sampler. I want to know if there is any way that I could record a sample on the Akai and dump it down into my Yamaha SY22 so that I can play the samples when I am away from the Akai. If I can't do that, are there any keyboards or modules with a sample-dump feature? I have recently heard of sample players. What is available within the £400 range?
Lloyd Price, Canvey Island, Essex

A No, you can't dump samples to an SY22 because it uses a completely different form of synthesis and therefore does not accept sample dumps. Yes, there are keyboards and modules (for example, the Korg T series, or the Yamaha SY99) that do accept sample dumps, but sampling and sample playing do not come cheaply, given the cost of the memory and circuitry required to reproduce digitally sampled sound successfully. MIDI sample dumping also requires a large amount of time and patience; a sample dump larger than a handclap takes a hell of a long time to complete. The Akai S01 (£799), although remarkably cheap, is still outside your price range and its second-hand value is quite high, although you might be lucky.

Your best bet may be to look out for a cheap, second-hand Akai S900, S950 or the much-sought-after Cheetah SX16. None of these models are in production and Cheetah no longer produces music gear, though.

I cannot get my sequencer to record System Exclusive messages. Heavenly Music produces a dedicated editor for the 330 called *Soundscope*. Would this enable me to edit voices in Multi mode?
Craig Stainton, Wallsend, Tyne and Wear

A *Soundscope* will certainly edit the Dr Synth 330 in Multi mode – it has a separate section dedicated to just this, as well as a competent Single-mode editor. *Sequencer One* can record System Exclusive messages, but the problem is that, because you are editing in Single mode, the SysEx dump will only put the same data back into the 330: ie, Single Voice mode.

At £24.95, *Soundscope* is a good buy – call Heavenly Music on 0255 434217. By the way, the Multi mode part of the program bears a resemblance to Heavenly's *Easel* Sound Canvas editor, reviewed in *FM* 8.

Antipodean analogue angst

Q I am frustrated. You talk about analogue synths and drum machines like the TR-909, Juno series, etc, quite a lot in your magazine. I can't find any over here in Western Australia. Assuming you have many contacts, I would like some addresses of suppliers of analogue gear or, even better, addresses of someone in the UK who will mail order to Australia.
Ewan Jansen, Mosman Park, Australia

A Call Music Control, Chapel Mews, 68 Crewe Road, Alsager, Stoke-on-Trent, Staffs ST7 2HA UK. Tel (from outside UK): +44 (0)270 883779, Fax: +44 (0)270 883847.

Patchy PA performance

Q I do a lot of synth programming and have a problem with the sounding of the patches. I own a home hi-fi with normal speakers to which I have connected my synth. At home the patches sound good, but when I play them through real PA systems the effects settings are not so good; for example, too much reverb. Would it make a difference if I used studio monitors at home, or would I then have to buy a special amp as well? Are there special headphones for this purpose? What do you recommend?
M Soekhlal, Holland

A It's not simply a matter of the speakers and amplifier that you use, but the surroundings in which you listen, especially when it comes to ambient effects such as reverb and echo. It's possible that the furniture, curtains and carpets at home absorb a lot of the reverb you have applied to the sound. A PA set-up in a club is a much more 'lively' environment and the equalisation on the system will be unlike that of your hi-fi, so the sound you get will be very different. Another factor could be stereo processing, which spreads the reverb across the speakers and lessens its effect. Are you adding more reverb to, for example, the right than the left side? This will sound significantly different when heard through a mono PA.

The simple solution is to use headphones. Any ordinary headphones should reveal the amount of reverb you have actually added to the sound and enable you to adjust the level much more accurately because your ears will be isolated from the relatively 'dead' room you have at home.

Sliding down

Q I am currently running the [Steinberg] *Cubeat* sequencer on an Atari with an assortment of gear, including a Roland JD-800. As you know, the action of its sliders can be transmitted to MIDI Out when Transmit Edit Data is on, and thus the information is recorded into the sequencer. However, every time I attempt this *Cubeat* crashes even though I am using only one slider.
Steve (no address supplied)

A *Cubeat* should, theoretically, be able to record the data-slider movements – they come under Control Change information. Have you tried switching MIDI Thru off in *Cubeat?* This is the likely cause of your problems because the MIDI data may be looping round your system.

If this doesn't cure the problem, call the Harman Audio helpline (tel: 0753 576911). Incidentally, Club Cubase (tel: 081 650 3571) will, for £14 a year, send you a magazine every two months with pages of advice, mixer maps, upgrade offers and the like. FM

Peavey peevy

◆ Peavey's DPM3 – expandable and versatile.

Q I recently bought a Peavey DPM 3SE synth. When I use it, after I've created and named sequences with bass and drum tracks, I select a lead sound so I can play live over the sequence. However, I find the effect on the sound I have chosen also has an effect on the sequence that is playing.

Is there anyway round this, without turning the effect off, or do I have to compromise the overall keyboard effects? Finally, how much would it cost to expand the memory so I could use samples?
E Carrigan, Glasgow

A It's always the same with these workstation keyboards. Once you are in Multi, or Sequencer mode, the on-board effects are spread thickly over every one of the multi-instruments. So if you want to apply distortion to that lead sound, it's going to affect every other sound too. Until the technology becomes available, and affordable, for a dedicated effects chip for each track, careful organisation is the only way to eliminate your problem.

The DPM 3SE has dual DSPs (digital signal processors) and three stereo outputs, so there are two options for getting a different effect on your lead sound.

First, slap both effects on the sequencer parts while the lead part is completely dry (that is, with no effects on it). Then route the sequencer parts to one pair of audio outputs and the lead part to another. As long as you have some kind of outboard effects unit, you can treat the lead part how you wish.

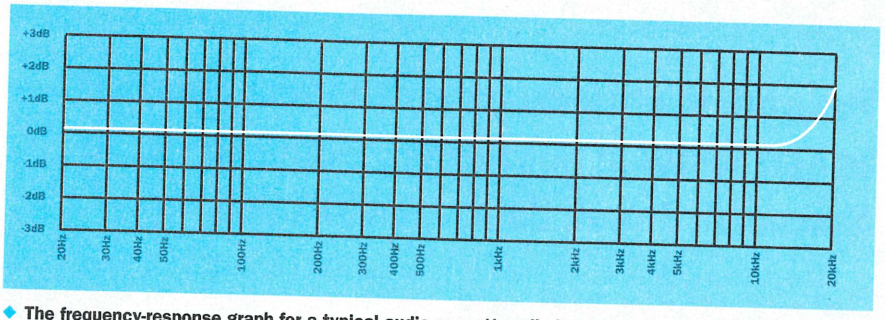
The second and simpler way is to assign one of the effects to the sequencer and the other to the lead part – parallel assignment, in fact. Again, your lead sound should no longer interfere with the other instruments.

The memory expansion, taking the DPM from 64k up to a sumptuous 512k (0.5Mb), is £195. Expensive, yes, but we're talking four battery-backed RAM chips here. Incidentally, the DPM 3SE Plus synth comes with 0.5Mb as standard, and is then upgradable to 1Mb.

◆ Peavey, tel: 0536 205520

Tape type terms

Crossflutter, signal-to-wow ratio, talk-response... These tape machine specs do get confusing. David Robinson unravels the riddles of the oxide-coated ribbon.



◆ **The frequency-response graph for a typical audio cassette, albeit a rather crude one. The tape will reproduce your recording accurately to around 14kHz, whereafter it adds a little extra hiss.**

TECHNICAL SPECIFICATIONS for multi-trackers and tape machines, and mixing controls which often go with them, are jargon territory ripe for the picking. Or unpicking, more appropriately. Here are some of the oft-quoted headings, and what they actually mean.

Be warned – the dreaded deciBel bugbear crops up no end in this neck of techno-town. Gen up on *FM* 15's jargon-buster if you get dB-heebee-geebees.

Crosstalk

This is the term used when an audio signal leaks from somewhere it is supposed to be to somewhere it is not. It can occur in any multi-channel system, including stereo, where individual audio channels are not sufficiently isolated from one another. In multi-track recording it crops up between adjacent tracks, usually because of incorrect alignment of recording or playback heads. Crosstalk is more likely on an 8-track cassette machine than on a 4-track because the tracks striped on to the tape are much thinner, and so any misalignment will cause a greater proportion of the signal to stray.

You might see crosstalk reported in a tech spec as '>100dB typical'. It means that if your incoming signal is pumped up by over 100dB, then crosstalk will occur.

Distortion

Distortion, expressed as a percentage, is a measure of how much a mixer or multi-track recorder will deform or damage your original signal. Typical distortion specs might read '0.03% (1 kHz/ -10dBV)' or 'less than 1.5% (1kHz @0dB)' – these are specs for the Fostex DCM100 & Mixtab and the Fostex 380S respectively. So distortion for the DCM100 was measured with a 1kHz tone at -10dBV (that's around half the volume of a line-level signal), whereas readings were probably taken at a line level 0dBu with the 380S – naughty Fostex left off the all-important dB suffix which indicates the reference voltage. You'd expect more distortion with a greater signal strength.

Total harmonic distortion, or THD, can be measured at a spot frequency (say, <0.2% @1kHz) or across the entire frequency range: the THD spec for the Phonic BKX-8800 mixer, for instance, is 'less than 0.2% (20Hz-20kHz)'.

they measure them, then? Generally, by recording, say, a 1kHz tone to tape, then playing back the signal, cancelling out the 1kHz tone and measuring the residual signal with a distortion meter. (They've got meters for everything these days). In practice, all these statistics are so dependent on the type of tape used and how well a particular machine performs that they should only be used as a guide. And anyway, if the amount of distortion is significant, there'll be a lot of disgruntled consumers.

Frequency response

This is often shown as a graph, and illustrates how a piece of kit responds across the frequency spectrum. The human ear can perceive sounds between 20Hz and 20kHz, and so audio equipment should show a flat response – that is, no gain or attenuation of level – between these two frequencies.

Frequency response should not be confused with bandwidth. A tape machine may be able to record any frequency between 20Hz and, say, 16kHz: this tells you the recording bandwidth, but not the frequency response of the unit. Something like '-1dB from 20Hz-30kHz' (taken from the Soundcraft Folio 4 spec) does that: in other words, across the frequency spectrum – and what a large one that is. You can expect a negligible loss in signal.

The shrink-wrapping of tape cassettes often shows a crude frequency-response curve. This supposedly shows you how the tape will treat what you throw at it.

SNR

Signal-to-noise ratio (SNR, or S/N ratio) is the amount by which a signal exceeds any noise that may be present with it. It's calculated with the following equation:

$$\text{SNR(dB)} = 20 * \log \frac{\text{peak signal level (Volts)}}{\text{noise level (Volts)}}$$

The peak level is taken as the reference level, 0.775V, which corresponds to 0dBu. The noise level will be some way below it (with luck). The confusion between absolute noise level and SNR must be cleared up here: an SNR of 75dB would suggest that noise is entering the system at -75dBu. Darn that deciBel scale.

The bigger the SNR, the less noise is going to be lurking around your recordings. Analogue multi-trackers can experience an SNR of anywhere between 60 and 80dB – again, the greater the ratio, the better your recording should be. DAT players and other digital widgets are not so susceptible to extraneous noise, so you'd expect an SNR getting on for 90dB.

Wow and flutter

Play back your tapes on a knackered old deck and you'll probably experience one of these. 'Wow' is a variation in pitch caused by slow variations in tape speed. 'Fluttering' is the fevered changes obtained by rapid variations in tape speed. Wow and flutter can be caused by worn parts in your machine, a liberal scattering of mucky deposits, or just a dodgy motor. Just keeping your equipment clean is one of the easiest ways to avoid them.

Thanks to Dave Malham at the University of York for his technical help with this article. What a guy.

FM

Dynamic range

To an engineer, dynamic range is the difference between the noise floor produced by the electronics of a system, and the maximum level of an input signal that does not lead to clipping and distortion. In simple terms, it's the difference between the quietest and the loudest sounds that a system can handle. It's measured in deciBels again, and calculated as follows:

$$\text{DR (dB)} = 20 * \log \frac{\text{max input voltage}}{\text{min input voltage (noise floor)}}$$

Typical dynamic ranges for some studio gear:

- Microphone 90-95dB
- Mixer 90dB
- 8-track multi-track tape machine 65dB
- 4-track cassette machine 55dB
- 16-bit digital recorder (practical) 95dB

The dynamic range of the human ear is roughly 120dB. So the bigger the DR of a device, the more realistic, and more desirable, its reproduction of sound will be.

It's important, when recording, to get your dynamic ranges aligned correctly. For example, if you are recording a powerful vocalist with a DR of 75dB on to an analogue machine with a much narrower DR of, say, 60 dB, then the quietest singing could get lost in noise

Howl round

Put word to processor and send your outspeak to Karl Foster at Howl round, *Future Music*, 30 Monmouth Street, Bath, Avon BA1 2BW.

Of musos and the muse

After years of reading letters saying much the same thing, I feel I must put pen to paper on the subject. The letter from Frazer Smith in particular, and Amr Mallassi to a lesser extent [*FM* 14 Howl round], shows signs of the limited tolerance that afflicts society as a whole.

Now being over 25, and officially no longer young, I find it intensely irritating that people still think that only the music they like can have any merit.

Can't Frazer see that he leaves himself open to the same criticism he levels at computer-orientated music? Does he tune his piano himself? I would guess not, yet guitarists, trumpeters (and yes, samplists) all tune their own instruments. Obviously this means that Frazer is cheating and therefore not a real musician at all.

I've played in real bands with real musicians playing real instruments making real mistakes and being really annoying, while I now play in a band using backing tapes, a singer and a guitarist. We do not mime.

As a songwriter I could take the opinion that musicians are the final obstacles between my music and my audience. We could all come up with a listing of our own top 100 'crap' bands. In my case Led Zeppelin would take the up the top 30 places, yet they've sold 1,000,000 times more records than I have. I know I am not wrong, but there are a lot of people who would disagree with me, and they're not wrong either.

To people who would go into print to slag off a band for doing a different form of music, I've only got one thing to say. Grow up. Skill is in doing, not pontificating about it. If you must slag off bands/music forms, go and become a music journalist where such stupidity is applauded and let real musicians and songwriters make music in whatever form they like.

Finally, regarding the last sentence of his letter, Frazer might like to consider that the term 'musician' is not generally regarded as a synonym for 'wanker'. Except by drummers.
David Ord, Tyne and Wear

Quite.

Morphology

I read the article on resynthesis in *FM* 14 with great interest. Splashed all over the inside cover is an ad for the E-mu Morpheus which, judging by the CD demo from *FM* 12, achieves similar results to the resynthesis stuff. But the Morpheus uses a different technique, right? What's the score?

(If SERC obliges, I'll be doing the Music-tech course at York next year – where the demo came from.)
D Gow, Oakham

Resynthesis is, simply, a means of analysing a sound and recreating it artificially. Morpheus uses a system called Z-plane synthesis and it's all about 'morphing' between various complex sounds.

Yes, Morpheus' 14-pole filters are pretty trick and can model complex resonant frequencies, but the main point of Z-plane is to offer a high level of control over the interaction of sounds in real time. For more on Z-plane synthesis, look out for an *FM* feature on it soon.

Up the Evolution

It's a shame that more information is not available for the EVS1 [Evolution's rack-mount digital synth module]. I'm sure if it had been manufactured by someone like Roland or Peavey we would now have access to large libraries of sounds, books on programming and templates for all the leading editor and librarian packages. Unfortunately, information and support is limited and this results in frustrated users.

I'm sure that the EVS1 is capable of a lot more than most of us are getting from it. How about a series on programming some of the synths that have been ignored: the EVS1, the Cheetah range, the Kawai K1 and K4? I'm sure that a large number of readers would benefit.
Graham Olden, Basingstoke

I'm averse to dedicating space to programming particular synths because I'd alienate the majority of the readership who don't own the model under discussion. And there are other, specific publications dedicated to helping you get more from your synth, such as books and, indeed, the instruction man-

If at first you don't succeed

PRIZE LETTER

I don't know if you recognise the name, but I am previously of Interlect 3000. When reading *FM* 14 I came across the heading 'Council house music' in the Howl round section.

I would like to say that a grant of £20,000 from a local council is one thing but, without a business plan submitted first, it's just pie in the sky.

We decided to start our own label, sealing ourselves into a two-year manufacture and distribution deal with Deltra and heading off to the Princes Youth Business Trust around April/May 1993. We were told that before we could apply, we had to compile a plan of our proposed business, so we contacted the local enterprise agency, which then arranged for us to start a six-week business course in June. Six weeks later we had got ourselves a business plan for a small, independent label, plus press coverage and an *FM* CD to boot.

The plan was submitted to the PYBT in November, but we were turned down flat – the trust thought we could raise the money by getting a record deal with another label. We have just wasted a year of our musical careers, but are coming back strong with our own methods.
Arron Courts, Grays, Essex

The Tenacity of the Month award falls to you, Arron. It's not an easy thing, forging a career in music, and there are so many blind alleys to explore before you come upon something worthwhile. You not only need talent and access to the equipment with which to make music, you need vision and a surety of purpose that what you're doing is right.

It's heartening to hear from someone who is not prepared to give up, even when no-one seems willing to give you the backing you need.

We at *FM* have all been through the frustrating business of trying to break into the music business, and it's gratifying to be able to help others out with *FM* CD airings, demo reviews, Breakers coverage and free Exposure ads for your original recordings.

As with any other career in the arts, you've just got to keep plugging away and if *FM* can help, it will. Interlect 3000 impressed us all, so I'm interested to hear your latest material and what methods you've come up with to get it heard.

◆ *Have you been traumatised by the biz? Have you nightmare tales of bum gigs, or studio-session shockers? Write in and share your experiences.*

◆ The prize letter wins a binder worth £5.95. Turn to page 88 to order yours, or subscribe and get one free.

ual. However, a series on the principles of synthesis, encompassing the many methods employed by various manufacturers on various product ranges, is most definitely on the cards. I reckon this will help you get a good grasp of how sounds are created and so enable you to better manipulate the sounds on your own kit.

Infirm and entertained

I have just come out of hospital and for the next few months I will be bedbound. I take great pleasure in listening to the *FM* CDs – my favourite section has to be the keyboard and module demos because the tunes are innovative and new. I know that you always play the demos from the new keyboards, but how about playing some from older keyboards, in particular the Roland U-20?

I used this keyboard throughout my school life, along with an Atari ST running *Cubase* 2.0. The demos (*Hyper Jazz* and I forget the other) are bloody amazing, as is the keyboard itself. I am now at college and I failed to make a recording of the demos before I left school. I would be absolutely ecstatic in an over-the-moon type way (and I'm sure that other readers would be too) if you would consider including a 'Keyboard Classics' (or something like that) section on your next or any forthcoming CD. It would make my stay in bed a lot more bearable.

Robert Wix, Cardiff

You'll notice that every month we carry coverage of classic and good second-hand gear, which includes *FM* CD demos of the instruments featured. Last issue you had a bunch of sounds accompanying Mark Jenkins' feature on hiring retro gear; this month we've the ARP 2600, Roland JX3P and Yamaha EMT10, and we'll be looking to come up with more ways of bringing you the synth sounds of yesteryear.

Thus your *FM* CDs will build up into a sound library of old and new instruments that will be invaluable to you, your children, your children's children... Oh bloody hell, someone dig out a U-20.

Keeping tabs

Last month I found your coverage of small mixing consoles very useful because I'm considering buying the Mackie 1202. However, I am confused about the fact that *FM* presented the Fostex DCM100 and Mixtab in *FM* 4 in great detail, giving it a rating of 91% but then, in *FM* 13, awarded it only 78%. Have the technical specifications changed drastically recently, or is this because other units have exceeded the Fostex quality since the February 1993 review?

Paul J Harrison, Haywards Heath

Good point, Paul. You must always remember that product-review ratings are time sensitive – last year's top-scoring product may be this year's Mr Average.

The body of the review is still useful for reference months after publication because many bits of kit still make good going on the second-hand market. The rating, however, must be viewed in the context of the ratings to Retro kit under review is very much tied in with this.

The Fostex DCM100 and Mixtab is still a very worthy mixer package, especially at its reduced price, but the rest of the pack has caught it up. Let's see what Fostex wows us with next.

Soft option

Interesting to read Dave Cairn's letter in *FM* 14 about employing synth technology into software. Unfortunately, I don't think that the manufacturers will pursue this direction. Why? Simply because there is little money in software compared with buying a synth or sampler.

The technology has been around for quite a long time. Back in 1985/86 PPG (now sadly defunct) had a prototype workstation, called the Realizer, that could digitally emulate a Minimoog (analogue synthesis) and a Yamaha DX7 (FM synthesis).

The system comprised a colour screen which depicted the front panel of said synth and also provided real knobs and sliders. The workstation was 8-part multi-timbral (a lot back then) and could have several operating systems at once. Imagine having a Minimoog, DX7 and sampler all in a neat unit!

And it wasn't just synths and samplers that it could emulate. How about a digital effects unit; how about four or more?! The cost? Well, it didn't go into production and was really only an experiment, so the £60,000 tag shouldn't be taken too literally. The processor was, amazingly, only a Motorola 68000 – yes, the same as in my humble Atari ST.

So although Roland and Yamaha *et al* may make hardware for the computers available today, I can't really see them going into software synths and the like, especially with piracy and fraud being prevalent in the area of software.

I'd imagine, considering how little it costs to duplicate, that software would be a great way ahead for synthesis. The main problem would be to come up with a decent hardware platform to support it, one open-ended enough to cope with major software upgrades and versatile enough to have new hardware slotted in as more is required of it.

Roland and Yamaha's excursions into desktop music have been more to do with manufacturing tone generators that look pretty sat next to a computer, with the module exclusively handling synthesis duties and the host providing control. However, even with piracy, I reckon it will not be all that long before somebody comes up with a fully integrated synth-sampler-sequencer desktop system.

Outfits such as the Composers' Desktop Project, as featured in last month's *FM*, show us what is possible, and that kind of thing leads to a demand from consumers. Manufacturers who ignore such demands don't do very well, so it's only a matter of time before one of them comes up with a system to gazump everyone else. And when that happens, we've got ourselves a bandwagon.

As for the Roland Super Quartet MKS-7, yup, you caught our reviewer on the hop with that one. The rack-mountable, MIDI-equipped tone module came out around 1985, nearly two years before the MT-32 was launched. Roland admits it didn't sell too many MKS-7s, claiming the device was a little ahead of its time. That's true to an extent – in those days, MIDI was not all that common and there were not many sequencers capable of taking advantage of its

PS: In your Retro review of the Roland MT-32, you mistakenly mentioned that it was Roland's first multi-timbral module when, in fact, this title goes to the Super Quartet which was a multi-timbral Juno 106 with a TR-707. A highly desirable piece of kit, I should have thought.

SY starter sensation

I am writing hoping for some advice because I am about to buy my first synthesizer. I am a complete beginner to this field of music and wish you to put me right on a few points if you can.

After extensively reading your magazine for quite a few months now, and because of the rave reviews received, I am thinking of buying a Yamaha SY85.

First, could you tell me of the suitability of this synth for a first-time buyer because all the reviews say how easy it is and that it's a joy to work with.

Second, how easy is the manual to follow? Is it particularly user friendly, or are you up to your neck in technical jargon like some you read about?

Last, if this synthesizer is fitted with a disk drive does this mean that I can use floppy disks manufactured by companies such as Korg, Roland or Ensoniq, or must I stick exclusively with Yamaha products and software?

Gary, Falkirk, Scotland

PS: Please recommend any books on synth programming, sequencing or MIDI for beginners because everything seems to be a labyrinth of inputs and outputs to a beginner.

◆ It's that flipping Yamaha SY85 synthesizer workstation again. Gets everywhere, it does.

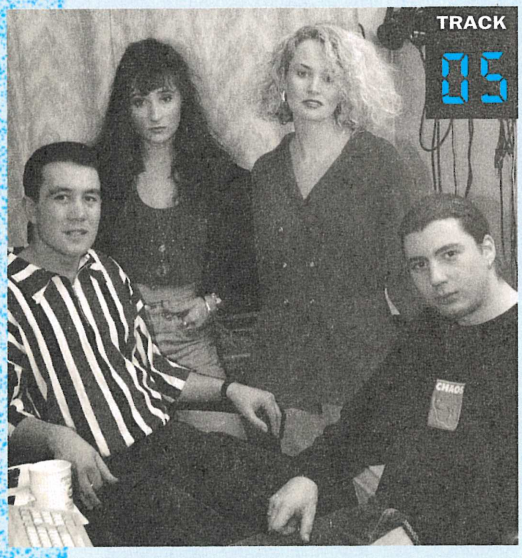
The SY85 is a great way into synthesis and sequencing, with its powerful sounds, built-in effects and on-board sequencer. The manual is reasonably friendly and the SY85's interface is easy to use compared with some workstation-type synths available.

The drive takes standard 3.5-inch DD floppy disks, so any reputable make of disk will suffice.

As for a book, try RA Penfold's *Practical MIDI Handbook* – see our mail order section on page 88. Or you could hang on for *FM's* own guide to getting started with MIDI, which should be out later this year.

New faces

Into a new year and the *FM* demo sack is a-glut with potential stars. Maff Evans and Dave Robinson delve through the cassettes and coupons in an attempt to discover the new faces of 1994.



Insight

Equipment not specified

Straight soul. That's what Insight provide – and in very generous helpings, too. In fact it was quite a surprise to find material as slick and professionally produced as the songs featured on this tape, because the packaging is a bit sparse to say the least. No nicely produced cover, no tape stickers... Nothing. Just a hand-written cassette case with the tape inside. There's a black-and-white photo and a letter, but this is hardly the most effective way of catching the eye of prospective A&R men, is it? Still, they did send us some more pictorial stuff later, so never mind. On with the music...

The style of the first track, *Teardrops Fall,* is reminiscent of American soul artists, such as Mariah Carey (you know the type). The arrangement is sparse, with a straight drum-machine rhythm behind the keyboards and vocals. Occasionally there are some brass sections which lift things well, but it doesn't take off. It's all very... Well, nice really. The performance and the mix are precise, clean and well executed (especially the vocal), but there are points in the track where it should soar – only it doesn't. The key is just to relax and let rip in places, giving a bit more emotion.

The second track, *Morning Light,* is on the *FM* CD and, as you can hear, it has a fluid feel which makes it work well. The rhythm is tight and punchy enough to push everything along, but doesn't crowd the mix. The only real problem is those synths always sound terrible unless they play very simple sections with loads of reverb way back in the mix. Lose such tacky elements and things would sound a whole lot better. Oh, and get that vocal to push out with a bit more soul. It is soul music after all.

The third track (which is the final home recording on the tape) is *Never-ending Love* and this speeds things up a bit to create an American-style soul-dance number. Unfortunately it doesn't really sound exciting enough to cut through the mass of these records that are already available. The programming is good (as is the mix), but there is just a slightly too lethargic feel. Again, you need to let the vocals fly to make it as interesting as possible. Hang on, haven't I just said that about the other tracks? Make it sound as though you mean what you're singing, otherwise this style just doesn't work.

As a bonus the tape also contains a mix of a track that was played on local radio (when the band were called XTurnal) titled *One More Thyme.* This is much more like it! The performance, programming and mixing is as tight as the other tracks, but there is much more emotion lurking in there. When it needs to it lays back a little, but can really let rip – thanks to the very good vocal performance. Let's hear some more stuff like this – soul with bollocks! Why this kind of emotion and power isn't on the other tracks, I don't know. The talent is obviously there, so let it go occasionally. It sounds a lot better when played and sung with feeling.

Take heed, Insight. The material is very good as it stands, but it's a bit soul-less, which kind of defeats the object really.

◆ Gary Louca 0705 872128

Sense of Sight

Equipment used:
Sounds: Akai S1000 and S950 samplers, Roland Alpha Juno-1, Korg M1, Jackson Soloist Custom guitar
Sequencing: Atari 1040 ST running *Cubase*
Recording: Soundcraft Spirit Studio 24, Fostex R8, Yamaha SPX900, Korg A2, Alesis Midiverb, AKG C1000S

Sense of Sight is more of a pseudonym than a band, since the only member is one Richard Berg. Looking at his picture (inside the very nicely designed inlay – it's a pity material to be quite rocky in style (especially as his influences include Simple Minds and Van Halen), but the three tracks on this tape hardly touch this area at all – they're more diverse than that. Included here are soulful club rhythms, groovy blues ballad material and even a dash of ambient dance. Quite a selection.

The first track, *Drop to Fly,* is a fairly upbeat, funky dance number that starts off quite simply, but builds up in a wash of piano runs, synth solos and vocal samples. The arrangement is nicely handled and the mix is well balanced, with clearly defined vocals. The only thing that lets the song down is the odd use of samples. For the most part the instrumentation is spot on, but there are sections which have wildly out-of-place guitar riffs and vocal hits. Apply more restraint in this department and the track would be a lot better (losing the slight novelty angle that the samples introduce), since the basic song-writing and mixing skills aren't bad at all.

The second track is *The End* (although it isn't – there's one more track on the tape) and can be heard on the *FM* CD. It's handled very delicately, eschewing the frantic beats-and-samples overload to leave a bluesey, laid-back track. As with the other material, the mix and performance are great, but whereas some of the sounds on the opening track held the song back, there's nothing in the way here. What cuts through is a heap of emotion (which is exactly what you need on a song of this type), uncluttered by fancy production effects and silly noises. As far as tips go for this one... Well, keep doing what you did here, basically. The balance between mood, material and mix is spot-on. This is real, modern blues at its best.

The final track takes yet another angle on the dance feel. As the title *Embrace the Sky* suggests, this is a more ambient techno effort. The mix is minimal, with just a few drum beats, a bassline and the odd synth line playing melodies. To add a bit of variety, an ambient pad in the break may have added a more 'blissed-out' quality, rather than just a drone behind the main track. Having said that, what's there is decent stuff. It's just that when creating ambient music you need to have a bit more of a

carry things off in this department, which means that it doesn't quite sound right.

All three tracks on the Sense of Sight demo are very competent, but it's only on *The End* that Richard shows a true deftness of touch. The other two are almost there, but they just miss the target thanks to the misjudged use of a sound or two. I would like to hear more stuff, though (especially the blues-type material), so keep me posted on any future material.

◆ **Richard Berg 081 874 9840**

Barracuda

Equipment used:

Sounds: Roland Juno-106 synth and U-220 expander, Akai SO1 sampler, Yamaha DS55

Sequencing: Atari 520ST running Dr T's *KCS* 1.6

Recording: Yamaha KM602 mixer, Hi-fi video (unspecified)

In yet another pseudonym-rather-than-band move, Paul Boddy has adopted the name Barracuda for his musical work. 26-year-old Paul took up music after hearing the work of Vince Clarke (when Vince was a member of Depeche Mode and later with Yazoo).

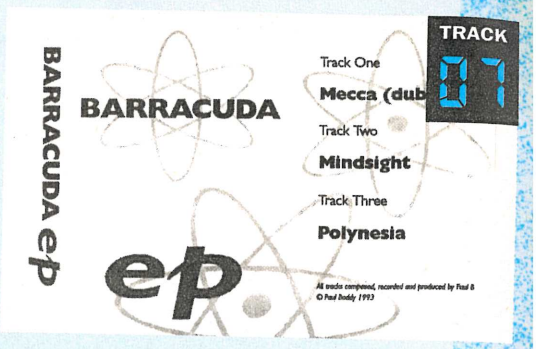
Despite being heavily influenced by the early 80s synth-pop sound, Paul's music leans more towards the dub-trance-techno-dance field, with booming basses, subtle samples and acidic melodies. Surprisingly enough, it's all done with very little equipment, even though it sounds complex.

The opening track is *Mecca (dub)* – hear it on the *FM* CD. After the slow, moody intro (using a Hammond B3 sample), the idea of letting rip into a full-blown, extravagant chord-bass-drum sequence works well – particularly with the dramatic choir samples that burst in. According to Paul, the starting point for *Mecca* was the Turkish lute-player riff, to which the bassline (courtesy of the Juno) and a couple of sampled drum loops were added.

For more effect, some U-220 organ and string sounds were added (along with a flute), giving everything more of an open, epic feel. Although majestic, the fact that the bassline is the same all the way through makes the track seem long and overblown. When the chord changes are used in the break it sounds wonderful (and I'm a sucker for whalesong), but the bass is too steady without any serious chord shifts. It would make great film music though.

The next offering is *Mindsight*, a more ethereal 'trip' song – all minor chords and fluid patterns. Unlike the first track, the 106 bassline does change throughout. Sure, it's only a 16-beat pattern, but the chords progress and, when it's behind the subtle vocal sample and moody chords, it works well. When the idea has run its course the track ends, but the introduction of a new angle or theme would have been better. Break off with a different area of the same mood, then bring things back for a finale.

The final track has a more eastern feel



and is one of Paul's older works. Pretty much everything to be heard on this is the Roland U-220 (including the dodgy flute sample. These always sound crappy on synth modules – avoid them), apart from the analogue-style bass which is a filter-swept Juno-106. It's all very nice, but is an empty idea, which goes to show just how much Paul's ideas have expanded with the use of a sampler. It may be worth recording this again, using more realistic eastern sounds along with the electronic edge to capture a more ethereal feel.

All three tracks are in the techno vein, but Paul claims he doesn't listen to much dance music. However, the dance bands that he *does* like (Transglobal Underground, Orbital and One Dove) seem to have shaped his sound. I'd be interested in hearing more stuff from the Barracuda stable.

◆ **Paul Boddy 0273 205337** FM

Straight to the point

David Robinson wobbles his tympanic membrane with the demos that nearly got away.

Citizen X

Where Darren gets the hook right, he fails with the instrumental backing (like on *New Man*), and, ironically, vice versa (as on *Get a Grip*). It's worth commending you on two tracks: *The Sound of Laughter*, with its stirring, flanging synth riffs and understated dub-bass – this should be the first track on your demo; and the instrumental *X*, a minimal but well-produced and appealing addendum.

◆ **Darren Deans 0900 63110**

Blue Rider

An intriguing collection of synth-sample tracks from Chester's Paul Bevan, with influences drawn from Euro-rock, techno and *The Holiday Programme*. I adored *Time*, a laid-back, summery groove tainted by the sadness of loss. Paul wants to write for video soundtracks, though most of these pieces could pass as electronic ventures in their own right.

One point worth mentioning: there's a fine line between gritty samples and those that just sound badly produced. Sometimes, you tread either side of that fine line.

◆ **Paul Bevan 0829 70196**

Ventral Metaphor

Industrial beats and loops, lengthy German texts and repetitive sound-bites, fanfares of synth brass: it all adds up to serious cyber-soma. Great listening if you are into mental illnesses.

◆ **Miguel Ruiz, Villamanin-5, 28011, Madrid, Spain**

Powerhouse

Catchy American-style rock from Brum. Some major EQ work is needed on the first couple of tracks: the lead vocalist sounds boomy and a little woolly, and he swamps the accompaniment as a consequence. He should watch his intonation at times, too. Things do improve with the second two songs, fortunately. Powerhouse should be good live.

◆ **021 551 8998**

The Pridenjoys

Powerful rock'n'roots, with a recorder substituted for an Irish penny whistle. Well, they are from Winchester. (Only fault: the end of the title track, *The Buttercross Song*, sounds like a joke.) Success imminent.

◆ **Dave Huckle 0703 694306**

The Third Man

White noise drum beats and all manner of analogue noises: is the Third Man a cunning bid for the title of Aphex Triplet? This stuff is sonically inventive, but musically bland. You should make more of the techno-reggae, touched upon in the track *Proto*.

◆ **Mark 071 729 2925**

Ian Livingstone

Ian has written an imaginary film soundtrack called *Raid on Berlin*. The orchestral arrangement – a Sound Canvas orchestra, that is – is professional and there is plenty of emotional swelling (so to speak), but the first two chords of the main subject are more reminiscent of a horror film than a war drama.

◆ **061 442 6039**

Send us your demo

Want some constructive advice on your demo? Why not send it in for review in these pages? You never know, if it's really hot you could be the next featured artist on the *FM* CD. Just mail the tape, plus any relevant literature and pictures, to the address below and we'll do our best to give it a listen and give you some pointers on how to improve your sound.

Demo tapes cannot be returned – so make sure you keep the master. Send your stuff to: **Demos, *Future Music*, 30 Monmouth Street, Bath, Avon BA1 2BW**

Band name.....

Equipment used.....

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Musical influences .....

Contact name .....

Address.....

.....

.....Postcode .....

Phone number .....

Tick here if you don't want your contact address or phone number printed ☐

Main aim for the band .....

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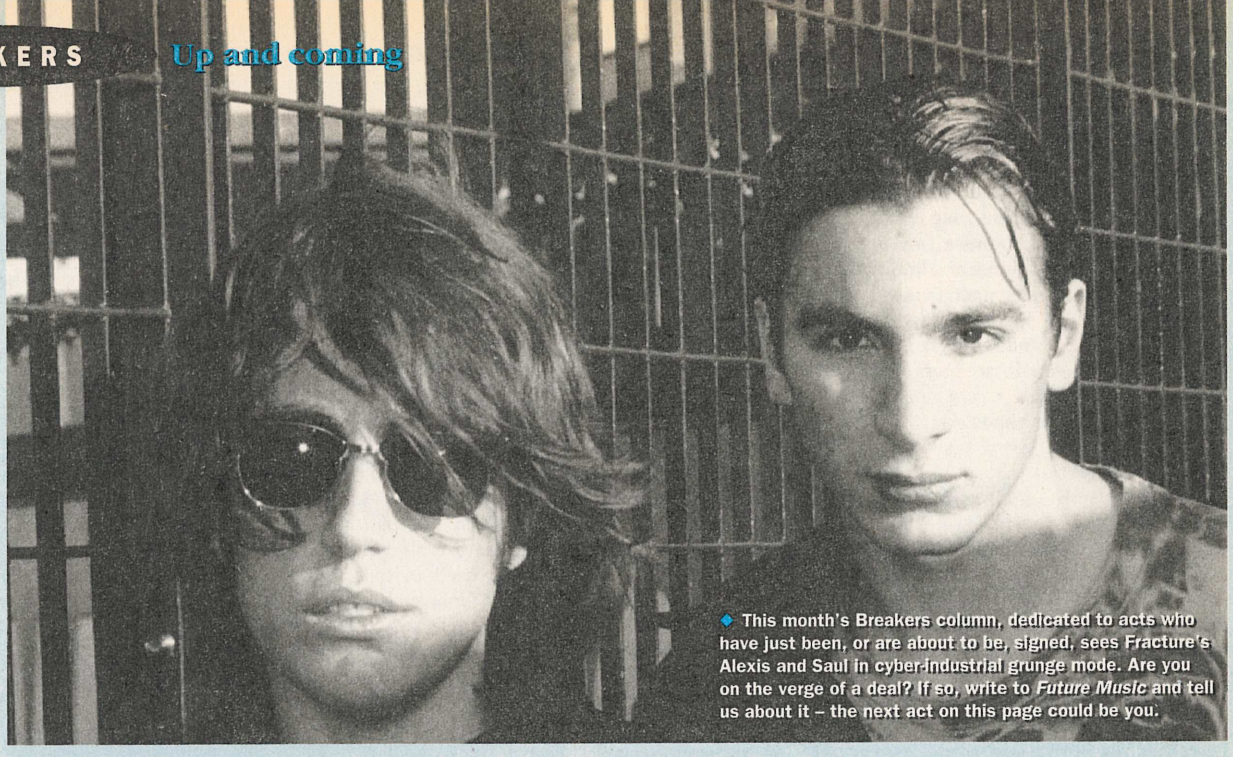
Making a break for it



◆ This month's Breakers column, dedicated to acts who have just been, or are about to be, signed, sees Fracture's Alexis and Saul in cyber-industrial grunge mode. Are you on the verge of a deal? If so, write to *Future Music* and tell us about it – the next act on this page could be you.

Fracture have just signed to a Belgian publisher. We find out how they got into the music business.

FUNNY HOW FATE WORKS, isn't it? After all, when two cousins living in separate continents meet up in a foreign country and find that they share similar ideals and tastes, there has to be something at work out there. Sound too far-fetched? Well, that's exactly what happened in the case of new industrial band Fracture.

In February 1987, Alexis Charalambous moved from Vancouver to London, while his cousin Saul Sette (whom he'd never met) moved to the capital from Venice. Alexis began working in (the near-legendary) Trident Studios, while Saul studied artificial intelligence at university. The duo met up by chance and found that they shared a lot of interests (both technologically and musically), and the idea of Fracture was born.

The concept of the band encompasses the whole 'cyberpunk' ethos – in terms of computers, multimedia, cybernetics, virtual reality and music – so Alexis and Saul began to reflect these influences within their music. The ideas of the two members grew and overlapped before forming a band was discussed, though, so the Fracture ideal was discovered before a note had been played.

When they started working on the music, they approached industrial with an uncharacteristic viewpoint. They view guitars and synths as the same – combining analogue synth sounds with harsh distorted guitars and programmed rhythms. This may have been heard before, but the main thinking was to reflect all areas of technology in a way that was very visceral and human (a trend which is becoming more popular these days).

As well taking their main influences from many of the 80s' electronic bands, Fracture also admit to being influenced by such artists as AC/DC, Led Zeppelin, Metallica and Jimi Hendrix.

Tape time

The duo began to build a musical set-up at home, collecting old gear and fitting it into their already eclectic working system. As chance would have it (yet again), Trident studios closed in 1990, so the duo managed to get hold of some of the studio's old equipment to set up their own recording and writing system.

After building and repairing the necessary tools, Fracture recorded their first demo and contacted Stevo at Some Bizarre (erstwhile home of bands like Cabaret Voltaire and The The) to get some feedback. Fortunately, this turned out to be favourable, so the duo pressed on, contacting Rob Earles of 140 dB management (representing Flood and Nine Inch Nails, among others). He liked the demo, so passed it on to Peter Kent who had just joined Belgian company Les Editions Confidentielles as executive manager. Fracture became his first signing.

At this point, the band ventured into the studio for the first time, working with Renegade Soundwave producer Paul Kendall at Worldwide Studios. Over the next 12 days, seven tracks were recorded and mixed, which were to be the contents of a mini-album released on Frantic Records (LEC's affiliated label). However, interest began to grow in the music business, with other labels calling up for meetings (Elektra, Island, Sony and Transglobal being just a few of the names involved), so they returned to the studio to complete even more tracks, ready for release as a full album.

At the moment, Fracture are awaiting a response from the industry on the album. A decision will be made on the recordings in time, but meanwhile Alexis and Saul are planning their first live shows. Rather than going for the small-scale club gigs of new bands, Fracture plan to make their gigs 'multimedia theatrical events'. Seeing as they are to be collaborating with individuals in the film industry, Fracture's gigs could well be worth looking out for. How long before the dotted line is signed upon? Can't be long now... FM

Fracture have tracks issued on two Les Editions Confidentielles compilations (out now on CD and MiniDisc, cat nos LEC VOL.01 & .02).

Fracture's seven points to success

1 The first point, which is often overlooked, is that you've got to have top-class music to offer. Otherwise, don't even bother.

2 Most record companies deal with hundreds of tapes a week, so simple yet eye-catching graphics are a must. Don't forget to make the band's name clearly visible, with tracks listed both on cassette and inlay.

3 Do your homework. Find out the names and contact the people within the company that you think will be interested in your music. Don't send tapes blindly to any label that you've heard of – this only wastes an awful lot of time and money.

4 Use everything at your disposal to get through to the right people. Don't take no for an answer, because you'll soon be faced with a multitude of 'brick wall' replies such as: "Sorry he's at lunch/in a meeting/not at his desk", and so on. Persistence is essential.

5 Once you get through to your contact, try to get them as interested as possible in your music. Remember – what you have is special!

6 If the response is positive, send them a tape. After a week or so, contact them again to see what they think. They'll never call you (it's a rule of the business).

7 If everything is going well, they'll want to meet you. Up to now, the music side has been covered, but in a face-to-face confrontation, new factors come into play. The music is only part of what you have to offer that can be sold to the public. Your attitude, vision, image and philosophy will all determine your success at this stage.

Finally, BE WARNED. Record companies are ruthless businesses. You are what makes them their money. Be wary – all that glitters is not gold (and all that), so get yourself a lawyer.

Expose yourself

Take this free opportunity to advertise your own demos and gigs to fellow musicians. If you think the music you're creating deserves exposure, show off your talent and let others know about it.

Alistair Wells

4MM by 4 Missile Mission. Alistair Wells' amazing album featuring 12 classic dance/orchestral tracks.

£4.50 for cassette or £2.50 with your own tape. (The *4MM* album is over one hour long.) A Wells, Poppyfields, Westmill, nr Buntiford, Herts SG9 9LJ, tel: 0763 271227

Another Cuba

Another Cuba, *Soulspit Rising*, alternative Stranglers, XTC, Joke, Metheny? Good tunez.
60 mins, 12 tracks, chrome. £5 to JC Hall. As featured on *FM* CD vol 2. Laughing Matter Records, 270 Dewsbury Rd, Leeds LS11 6JQ, tel: 0532 710318

Antenna

Pure underground techno/ambient/dance compilation tape featuring 16 previously unreleased tracks by several unsigned artists. C90 chrome tape – free white label 12-inch with initial 500 copies. Price £4, payable to Antenna, PO Box 22, Cleckheaton, West Yorkshire BD19 5YZ

Campfires and Dreamtime

Ambient synth album from Simon Champion. 45 mins, 8 tracks. Cassette £5.99. CD £9.99. Please make cheques payable to SG Productions, 78 Cowick Hill, St Thomas, Exeter EX2 9NJ

Circus In Town

The Sordid World of Doctor Death. Electro goth-style rock. 13-minute, 4-track chrome tape EP £2 inc P&P. 200 Jeansway, Dunstable, Beds LU5 4PR, tel: 0582 668320

Cliff Randall

1 *Rhythm and Rhyme*, 2 *Rhythm and Rhyme Remix.* Style: dance. Playing time: approximately 10 minutes. Chrome tape, £1.50. Send to Cliff Randall, 6 Edward Way, Ashford, Middx TW15 3AY

Club X

W.A.M. R.I.P. EP. Mozart mixed with kickin' dance beats, sputnik squeaks and more. 12.5 minutes, 5-track CD. 12-inch white label or Fe cassette £2.75 inc P&P. Cheques payable to S Metcalf, 37 Westminster Road, Wellingborough, Northants NN8 5YS

Code Name G

By Ges Varley (half of LFO). Techno, house. 40 mins, 7 tracks, chrome tape. £5 inc P&P. Make cheques payable to G Varley, 100 Foundry Mill Drive, Leeds LS14 6SD – all unreleased material.

Dielectric

House/techno. 10 tracks on chrome tape £2.50 inc P&P. From Jonathan Pitkin, 8 Blackford Road, Edinburgh EH9 2DS. Length approx 50 mins.

Emeric Donath

Altereal. Industrial experimental and ambient tex-

Postal orders to Emeric Donath, 100 Bain Avenue, 59 Oaks, Toronto, Ontario M4K 1E8 Canada. *Altereal* is available for trade with other artists.

Kneel to the Boss

Feet On. Techno dance minus vocals. Four tracks, 30 mins, chrome, Dolby B HX Pro, £3.50 inc P&P to David Pantling, 31 Cornwall Grove, Bletchley, Milton Keynes MK3 7HX. Send SAE for further updates or info. Go on, treat yourself!

Marky Spark

Can't keep still, then you must be moving to Marky Spark's deep bass synth and indie backing mods. For a superb 60-min chrome experience send SAE with cheque or postal order for £3.95 to Mark Dyer, 57 Maricourt Ave, Blackburn, Lancs BB1 3NP

MC Floyd

Tracks off the *Pink on the Brown* style A-side commercial rave, B-side jungle ragga. Total playing time approx 10 mins. 12-inch vinyl £3.50 inc postage. Please send cheques, POs to Snap Music, Box 1215, London N11 1JP

Neurospasm

Debut 12-inch vinyl EP. Gritty industrial dance pop sampling shag-fest.16 minutes, approx. 4 tracks £3.75 inc P&P from Nick Edwards, 6 Temple Street, Bedminster, Bristol BS3 3NF

Patternclear

Slowdown. C46 MC, 12 tracks on chrome tape. Atmospheric ambient/techno crossover, colour sleeve, partly released on CD. £3.50 from Phil Clarke, 92 Edward Street, Nuneaton, Warwickshire CV11 5RE (price includes P&P).

Protogonos

Noumena and Phenomena. The sound of ambient music in deep space. One hour, four tracks, Cr02. £5.99 inc P&P. Cheques or POs to Protogonos Publishing, PO Box 197, Sowerby Bridge, W Yorkshire HX16 3YT

Purged

CD compilation of 15 acts (20 tracks). 71 minutess of unsigned talent. Various styles. £5 POs or cheques to Purge Records, 38 Chancery Lane, Nuneaton, Warks CV10 0PD. Bands wanted for next CD, any style.

Rabbit

Dream Jungle. Atmospheric. 45 minutes, 13-track CD £9.99. Chrome tape £5.99. Features Dave Gilmore on guitar. Recorded at Pete Townshend's Eel Pie studios. Cheques payable to John Bundrick. Orders to Sue Vickers, 5 The Drift, Harlaxton, Grantham, Lincs NG32 1AE

Out of Oblivion ... Into Life

Rock and pop music with much originality and

Another Cuba's self-produced cassette album includes *Language*, featured on *FM* CD vol 2.

tape for £2.50. From Adrian Quayle, PO Box 32, Warwickshire CV35 8JW

Roman-Ha

Vision of Linz. Hitler's rise and fall explored through fusion of sampled speeches and orchestral music. Vinyl album (45 minutes). £5 inc P&P. Please make cheques payable to Gary Mill, 3A South Fort Street, North Leith, Edinburgh EH6 4DL

Logik 4

Astral, synth-based/new-age/ambient. 30 mins. Two tracks at 15 mins each. Ferric cassette £2. Send cheque/PO to Matt, Logik 4, 2 Dovedale Avenue, Prestwich, Manchester M25 0BU

Sub Requiem

Neomutanoid. Atmospheric, haunting and 'cybergothic' images from a grim future of genetic engineering and psychomancy.

Approx 23 minutes, four tracks on chrome tape, only £3.50. Cheques payable to Linda Hunt, 5 St Georges Terrace, Llangawsai, Aberystwyth, Dyfed SY23 1HE

Susie Plays Jazz

'Original' pseudo-jazz with eccentricities. About 40 mins playing time, 10 tracks. Chrome, £3.50. From 486a Brighton Road, South Croydon CR2 6AP. Cheques to A A Elsdon. Cheers!

Swell/Fade

Structures. 2 x C90 sampleworks, remixes, loops and treatments 1992-93. 55 tracks. One tape, £2. Both tapes £3.50, post paid, or send C60 & SAE or £1.50 for progress report. Cheques payable to Gareth Metford from Swell/Fade, 14 Holmwood Drive, Formby, Liverpool L37 1PQ

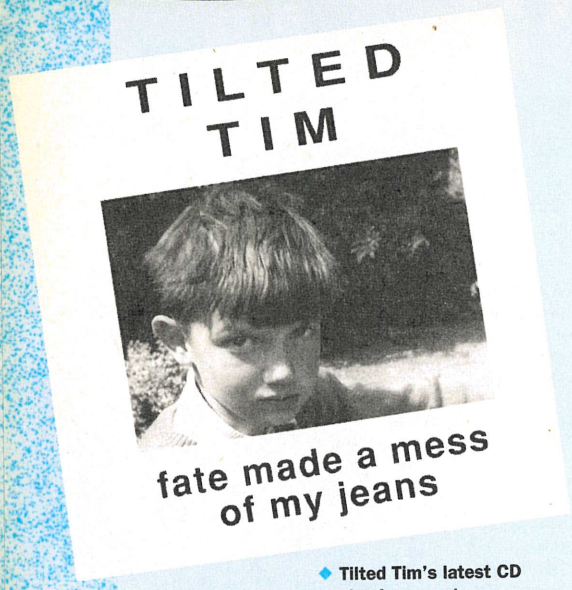
The Big Casino

1st tape, rock (melodic), 51 minutes, 11 tracks of original music on chrome tape, £5.20 including P&P. From The Big Casino, 44 Elmore, Eldene, Swindon, Wilts SN3 3TL

The Locust Years

Temple appears on a compilation CD along with other guitar/ synth bands. 17 titles including band biogs.

EXPOSURE Your demo tapes for sale



◆ **Tilted Tim's latest CD comes with a money-back guarantee.**

◊◊ The Third State

Victims of Circumstance. Much instrumental using SC55, guitar, vocals. C90 chrome, DAT mastered, 22 tracks. 28-page world tape network book. £3. Cheques to Trevor Hall, 58 Peel Road, Chelmsford, Essex CM2 6AL

Tilted Tim

Fate Made A Mess of my Jeans. 13-track, 38-minute CD. Ain't nobody's style but my own.

Accessible, wild lyrics. Hummable tunes! 14-day money-back guarantee! £8.99. All cheques to be payable to Flagrak, PO box 549, Harrow HA2 7BG

Tormentum Excruciatum

New EP from Viral Technology. Industrial/electronic/thrash metal. Nitzer Ebb meets Anthrax! Four songs, 20 minutes. Chrome tape £3 inc postage UK/Europe, £4 elsewhere. Cheques to P Davis, 13 Burnham Way, London W13 9YE. Gigs wanted!

Tortus

Lexeme. Avant-techno-dub-thrash-improv-pop band. Electronics plus 'Fripp on Mescalin'. Cpom label. 50 minutes. 10 tracks on chrome tape £3.50. Stephen Watkins, 29 Langham Close, Ham Common, Richmond TW10 7JE

Volcanic

The *Eruption* EP. Powerful hardcore and quirky techno dance. 28 minutes and 6 tracks that launched the Cano Twins from the crater. Chrome cassette £3.50 to Piers Warren, 84 Bowthorpe Road, Norwich NR2 3TP – get manic with Volcanic!

Noisebox

Volcanic, UXB, Resistance and Tribe of Ssenkrad, the Noisebox EP. A compilation of four techno acts. Essential listening, as heard at Club Dog. 25 minutes, four tracks on vinyl 12-inch white label. Send £4 to Piers Warren, 84 Bowthorpe Road, Norwich NR2 3TP

Jon Rush – The Big Picture

Sound Track pieces, electro acoustic, 17 mins, 7 tracks, chrome. Quality colour inlay. £4.50 inc P&P from 32 King Rd, Knowle Bristol, Avon

Syndicated

New 4-track chrome tape available. Guitars and keyboards. Drench powerful and memorable tunes. Cheques for £2.50 (inc P&P) payable to Syndicated, 10 Woodhouse Lane, Bishop Auckland, County Durham D14 6JY

Noise Union

Stand Your Ground EP – hardcore, baroque, techno, hip-hop, thrash acid in the key of Industrial Sharp. 1,800 seconds, 5.9 tracks, Cr02. £2.02 + SAE – Matthew Cpbra, Cell 13, Claredale House, Claredale St, Bethnall Green, East2 SixPE

The Bomb Circle

60-minute, 12-track, homemade death disko tekkno tape (Aphex, Joy Division, Vangelis, FSOL, Twin Peaks). Swap tapes or £2.50 inc P&P, payable to Anthony Parker, 27 Richmond Road, Fallowfield, Manchester M14 6YW

Positive Potential

Third Eye. Trance, ambient, experimental, high-tech future music. Six tracks on a C40 chrome cassette. £3.50 inc P&P, payable tp D Appledore, 7 Pendennis Close, West Byfleet, Surrey KT14 6RX

sub Requiem

Cheapo Card Company

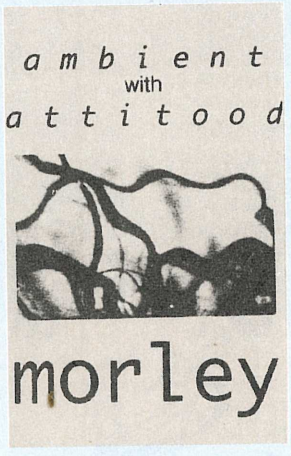
When Lost Plants Recall. Chrome C60 cassette and booklet and badge – wow! Prime value triangular music for spacepeople and fish fingers. £4 payable to WL Walker, PO Box 472, Norwich NR3 3TS. My brain is stuck – yours can be also!

AJ

Galactic nightmare sci-fi fantasy musical. *War of the Worlds* influence. 98 minutes, 20 vocal/instrumental tracks. Chrome cassette, Dolby B or C. A4 story/songfile. Full-colour printed, limited edition 60x42cm gn artwork poster and inlay. £7.95 inc P&P. File/poster sent unfolded in tube. From: Alan Jefferson, 11 Cedarwood Drive, Springhead Grange, Hull HU5 5YA

Reverend Green

The Devout EP. 30 minutes, four songs, two remixes, chrome tape. Well-structured 90s commercial music. Dancier than Depeche Mode, nastier than New Order, sexier than Shakespear's Sister. £3. P Smith, 23 Sheppertyton Street, Nuneaton, Warks CV11 4NN



Sun Sea Sex

12-track compilation CD of bands from the south-coast indie grunge rock. Almost 60 minutes of music. £6 including post. Cheques to Nil Satis, 62 Hinton Wood Avenue, Highcliffe, Christchurch, Dorset.

Morley

Ambient With Attitood. Hybrid instrumental exercises. Emotionally, generically diverse, dance, film, rock, etc. Nice chords, grooves, tunes, hooks. Includes arrangements of Bartok, Stravinsky, Prokofiev. 40 mins, 11 tracks, TDK-SA £3.75. D Hale, 61 Drayton Park, London N5 1NT

Mattachine

Biohazard! 11 tracks of up-beat electronic listening music. Professionally duplicated C60 + colour insert. The best music you'll hear in 1994. £4.99. Cheques to Clone Zone, 5a St Hildas Road, Northenden, Manchester M22 4FP

If you need exposure, use the form FM

Expose yourself!

Unsigned? Got great songs? Need exposure? Then advertise your original recordings to other readers – completely free of charge!

FM's Exposure section is the place to be if you're aiming to show off your musical and recording talents. Here's what it'll offer:

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- *A chance to gain recognition among fellow musicians and, at the same time, find out what they are up to*

Just fill in this form and send it to:
EXPOSURE, *Future Music*, 30 Monmouth Street, Bath, Avon BA1 2BW Please ensure that your recordings are well produced and professionally duplicated – and priced realistically. *Future Music* cannot guarantee the quality of any music sold. The copyright of cover versions and samples must be cleared (contact the MCPS on 081 769 4400). If sending a tape, please use the form on the Demos page.

How to complete the form:
Exposure ads can't be run if your name, address and contact number aren't included, so please don't forget this information. Send the details in this order:
band/artist name • **volume title** • **musical style** (industrial, ambient etc) • **playing time** • **number of tracks** • **tape type** (chrome or Fe) • **price** • **address**

If possible, please enclose a printed sheet of equipment and recording details. Your entry will be run for three issues, after which you will need to re-submit it.

Name .....

Address .....

.....

Telephone .....

PLEASE WRITE CLEARLY IN **BLOCK CAPITALS** – AND DON'T FORGET TO INCLUDE THE NAME AND ADDRESS FROM WHICH TO ORDER YOUR RECORDING. THANKS.

Review Product Locator

This is the page that helps you find out which issue of *Future Music* carried which review and what rating the product achieved.

SAVE YOURSELF hours of frustration flipping through back issues to find a particular review. Use *FM's* regularly updated review product locator to find out which issue contains the word on the kit you want to buy.

All the hardware and software reviews from the past 12 issues are listed below, with prices, ratings and respective issue numbers.

If your *FM* collection is incomplete, turn to page 94 for details of our back-issue ordering service.

One point to note: the ratings shown are time-sensitive – last year's 90%-scoring synth could be this year's 70%-er, technology being ever on the advance, so remember that when buying.

Synths, samplers & controller keyboards

Manufacturer	Model	Type	£Price	FM rating	Issue
Akai	S1000	Sampler	1,600-1,900	82%	5
Akai	S3000	Sampler	2,999	95%	5
Dream	GMX-1	Tone module	249	86%	4
E-mu	Emax II	Sampler	1,810	73%	5
E-mu	Vintage Keys	Tone module	865	77%	14
Ensoniq	ASR-10	Sampler	2,345	89%	7
Ensoniq	KS-32	Workstation	1,895	81%	4
Farfisa	F5	Home kbd	1,699	82%	13
Fatar	2001	Controller kbd	1,099	78%	12
GEM	WX2	Home kbd	1,899	94%	12
Invision	M1 Plus-1	Expansion	349	8/10	4
Korg	05R/W	Tone module	599	91%	12
Korg	i3	Workstation	2,199	94%	14
Korg	Wavestation EX	Synth	1,495	92%	8
Korg	Wavestation SR	Tone module	1,099	85%	14
Korg	X3	Workstation	1,395	79%	12
Kurzweil	K2000R	Synth	2,769	92%	7
Orla	Commander C80	Master kbd	1,199	80%	12
Peavey	DPM2	Synth	999	81%	8
Peavey	DPM V3	Tone module	839	68%	14
Peavey	Spectrum Bass	Tone module	279	83%	9
Peavey	SP & SXII	Sampler	899 & 379	92%	11
Roland	E-86	Home kbd	1,649	88%	14
Roland	JD-990	Synth	1,445	89%	9
Roland	JV-80	Synth	1,499	76%	8
Roland	JV-80x	Expansion	250	8/10	9
Roland	JV-880	Tone module	840	78%	14
Roland	JV-1000	Workstation	1,859	92%	10
Roland	S-750	Sampler	3,175	84%	5
Roland	SC-7	Tone module	279	81%	5
Roland	Sound Canvas p-55	Piano module	469	84%	14
Technics	SX-KN2000	Home kbd	1,999	87%	11
Yamaha	KX88	Controller kbd	1,545	75%	12
Yamaha	PSR-410	Home kbd	499	84%	15
Yamaha	PSR-510	Home kbd	699	80%	15
Yamaha	PSR-5700	Home kbd	1,599	85%	7
Yamaha	QR10	Auto accomp	299	89%	11
Yamaha	QY20	Walkstation	449	83%	4
Yamaha	TG500	Tone module	1,099	85%	14

Recording

Manufacturer	Model	Type	£Price	FM rating	Issue
Akai	DR4d	HD multi-tracker	1,599	85%	12
Fostex	380S	Multi-tracker	699	93%	14
Fostex	DCM100 & Mixtab	MIDI line mixer	399	78%	13
Fostex	MC102	Mixer/recorder	399	75%	4
Fostex	X-28H	Multi-tracker	419	93%	13
Hands On	Limelight	MIDI light controller	525	88%	8
Mackie	1202	Mixing console	355	82%	13
Otari	DTR-7	DAT recorder	1,639	80%	14
Phonic	BKX-8800	Mixing console	199	88%	8
Phonic	PMC1202A	Mixing console	555	81%	13
Samson	MPL 2242	Mixing console	981	70%	15
Samson	Servo 240	Power amp	335	75%	15
Soundcraft	Spirit Folio 4	Mixing console	1,174	89%	11
Soundcraft	Spirit Folio 12:2	Mixing console	410	85%	13
Soundcraft	Spirit Folio Si	Mixing console	499	90%	13
Tascam	MM-200	Stereo mixer	449	85%	11
Tascam	Porta 07	Multi-tracker	345	85%	8
Yamaha	MC803	Mixing console	765	79%	13
Yamaha	MT8X	8-track multi-tracker	1,199	86%	15

Effects & signal processing

Manufacturer	Model	Type	£Price	FM rating	Issue
Art	Multiverb Alpha SE	Effects	499	89%	11
Art	Multiverb LTX	Effects	199	70%	4
Boss	SE-50	Effects	499	89%	11
Boss	SE-70	Effects	569	935	12
Digitech	DSP 16	Effects	269	68%	4
Digitech	DSP 256XL	Effects	489	63%	11
Digitech	Vocalist II	Harmony generator	929	80%	13
Energy Technology	VKP-1	Valve pre-amp	389	87%	15
Korg	A4	Effects	389	82%	4
Lexicon	Alex	Effects	389	75%	10
Lexicon	LXP15	Effects	1,024	89%	6
Lexicon	LXP5	Effects	563	83%	6
Lexicon	MRC v4.0	Remote control	399	72%	6
Peavey	SDR 20/20	Effects	649	85%	11
Peavey	Ultraverb 2	Effects	319	80%	4
Phonic	PEQ3400	Equaliser	165,	89%	8
Roland	SDE-330	Dimensional delay	749	84%	15
Roland	SRV-330	Dimensional reverb	749	84%	15
Sabine	FBX-900	Signal processor	492	91%	7
Viscount	EFX-1	Effects	239	62%	12
Viscount	EFX-2	Effects	139	65%	12
Yamaha	GW50	Guitar effects & accomp	649	74%	12
Yamaha	SPX990	Effects	735	95%	13
Zoom	9001	Effects	249	80%	4

Drum machines & percussion triggers

Manufacturer	Model	£Price	FM rating	Issue
Alesis	D4	399	81%	15
E-mu	Pro/cussion	629	84%	15
Roland	TDB-7 & TDE-7	999 & 645	87%	13
Roland	SPD-11	525	85%	13
Simmons	HexaHead	689	82%	14
Yamaha	RM50	649	83%	15
Yamaha	TMX	399	80%	15
Zildjian	dk10	549	81%	11
Zildjian	DrumKAT 3.0	1,090	86%	5

Desktop music & MIDI

Product	Platform	Type	Manufacturer	£Price	FM rating	Issue
AD1012 + Studio 16	Amiga	Disk recorder	SunRize	399	79%	6
Alchemy v2.6	Mac	Sample editor	Passport	550	78%	4
Audio Gallery	Mac, PC	DTM bundle	Korg	399	70%	15
Audio Master	Falcon	HD recording	Sound Pool	225	65%	15
Bars and Pipes Pro 2	Amiga	Sequencer	Blue Ribbon	299	80%	8
Boom Box	Amiga	Remixer	Dr T's	45	82%	4
Breakthru	ST	Sequencer	Gajits	130	90%	5
Cadenza for Windows	PC	Sequencer	Digital Music	189	86%	5
Cakewalk Pro for Windows	PC	Sequencer	12 Tone	299	88%	7
Clarity 16	Amiga	Sampler	AVR	150	51%	5
Concerto	ST	Sequencer	Microdeal	40	88%	4
CP-Gen	ST	MIDI controller	GRI-Soft	80	69%	12
Cubase for Windows	PC	Sequencer	Steinberg	335	80%	2
Cubase Score	Mac	Sequencer/score writer	Steinberg	599	89%	5
D2D 4T/FX	Falcon	Recording	D2D	299	89%	6
D2D Edit	Falcon	Editor	D2D	150	88%	6
DataDisk	–	MIDI data filer	Alesis	399	65%	10
Deluxe Music Construction Set	Amiga	Notation	Electronic Arts	89	79%	13
Digital Soup	PC	Recording	Digital Music	85	80%	9
DigiTape 2.2	Falcon	HD recording	Q Tek	399	82%	15
Easel	ST	Sound Canvas editor	Heavenly Music	25	68%	8
Encore	Mac	Score writing	Passport	580	65%	12
Falcon030	Falcon	Computer	Atari	499	85%	6
Finale	Mac	Score writing	Coda	800	75%	12
GEM Sample Translator	GEM S2&3	Translator	GEM	79	58%	5
Gravis Ultrasound	PC	Soundcard	Gravis	210	70%	6
DSS8+	Amiga	Sampler	GVP	69	71%	11
Hello! Music!	Mac, PC	DTM bundle	Yamaha	399	72%	15
Hotfoot	–	Foot controller	Algorythm	687	80%	10
Inter-Actors	Mac	MIDI controller	Time Tech	US $180	75%	7
John the Composer	ST	Composer	Newtronic	45	71%	9
MDF2	–	MIDI data filer	Yamaha	349	83%	10
Megalosound	Amiga	Sampler	HiSoft AVR	35	82%	14
MIDI Busker	All	Style templates	Station Records	15	9/10	5
MM5	–	Foot controller	Philip Rees	199	87%	10
MM10-X	–	Controller keyboard	Novation	160	84%	10
Mosaic	Mac	Score writing	MotU	479	70%	12
Musicator GS	PC	Sound Canvas cont.	Arbiter	295	85%	13
Music Mandala	ST	Composer	Newtronic	29	73%	9
Music Prose	PC	Score writer	Coda	250	72%	10
Notator Logic v1.1	Mac	Sequencer	Emagic	499	78%	6
Notator Logic v1.5	ST	Sequencer	Emagic	499	87%	15
OctaMED Pro V5	Amiga	Sample tracker	Amiganuts	30	87%	10
OttoMix	Mac	Mackie mixer cont.	Key Audio	345	75%	13
PatchMeister	Amiga	Librarian	Blue Ribbon	80	7/10	12
PC-1600	–	MIDI controller	Peavey	329	91%	6
Power Chords for Windows	PC	Composer	Digital Music	69	80%	4
Rave for Windows	PC	Sequencer	Software Business	70	85%	8
SampleCell II	Mac	Sampler	Digidesign	2,035	82%	11
SeqWin v2 MultiMedia	PC	Sequencer	Laurie Woolf	129	91%	14
Session Partner	ST/PC	Composition	Newtronic	149	78%	7
SMP-16	Mac	Sync box and patchbay	Anatek	840	85%	14
Sound Blaster 16	PC	Soundcard	Westpoint Creative	292	80%	6
Soundbrush	–	MIDI data filer	Roland	599	79%	10
Sound Impression	PC	HD multi-tracker	Digital Music	89	89%	12
Sound Producer Pro	PC	Soundcard	Orchid	169	75%	6
Soundcanvas Editor	ST	Sound Canvas editor	Hands On	40	70%	8
Soundmaster SC-55	ST	Sound Canvas editor	Newtronic	24	86%	8
Soundscape	PC	SSHDR1	Soundscape	2,500	86%	13
SuperJAM 1.1	Amiga	Composition	Blue Ribbon	130	89%	9
SuperSound III	Amiga	Sampler	Amiganuts	3.50	79%	7
Technosound Turbo 2	Amiga	Sampler	New Dimensions	50	86%	9
The Pianist	Mac/PC	MIDI files	PG Music	30	9/10	9
Triple Play Plus	Amiga	MIDI interface	Blue Ribbon	170	8/10	12
Ultrasound	PC	Soundcard	Gravis	192	65%	11
Unisyn 1.0	Mac	Editor/librarian	MotU	299	70%	8

The Buyers' Guide

AND HERE WE ARE once more with the *FM* Buyers' guide, where you can find the information you need to make the right kit-buying decisions. This month it's sound and studio gear under the floodlight, so just flick to what you're interested in and you'll see what's currently available, a description of what it does and how much it costs (recommended retail prices, including VAT, are quoted). You'll also find the latest *FM* Top 10 second-hand buys, starting on this very page, to help you add to your rig without blowing a bundle on new kit.

This month's *FM* Buyers' Guide gives you the gen you need on synths, samplers and various studio hardware. Look out for desktop music and MIDI next month.

The information in this guide is as up to date as we can get it, but if you spot anything that doesn't add up, let us know and we'll amend it.

Next month, as with last month, we'll be looking at desktop music (DTM), with all the latest information on computers, software, MIDI and related products.

If you've got any practical suggestions on how we can further improve the *FM* Buyers' guides, don't hesitate to write to us at the address in the box to the left and say exactly what you want to see. In the meantime, happy shopping.

Send us info!

Manufacturers and distributors! We need to hear about your latest products so we can keep the *FM* Buyers' guides up to date. Send all the pertinent details, including VAT-inclusive RRP, on your letter-head to Buyers' guides, *Future Music*, 30 Monmouth Street, Bath BA1 2BW, or fax 0225 446019.

The information here is believed correct at press-time. If any of your product or company details are due to change, please inform us as soon as possible.

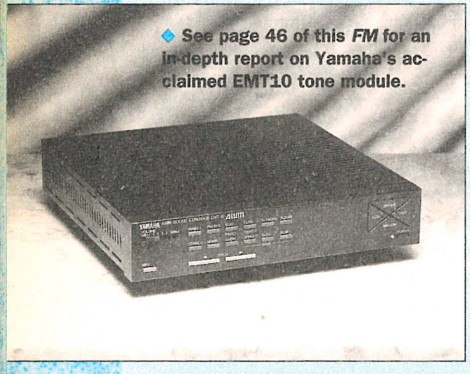
The *FM* used-gear Top 10

Seek out the very best second-hand bargains with this month's *FM* Top 10 buys. And see what other readers have to say about the charting kit...

Roland Juno 106 ~£350

Roland's last truly analogue polysynth, the Juno 106 is becoming known on the dance and techno circuit as the synth with 'that' sound. A special unison mode combined with one of Roland's unique chorus circuits and a special bass boost feature make it one of the hugest sounding non-Moog machines around. Unlike the earlier Juno 6 and 60, it comes with MIDI built in so there's no need for retrofits. The strings and brass sound good too.

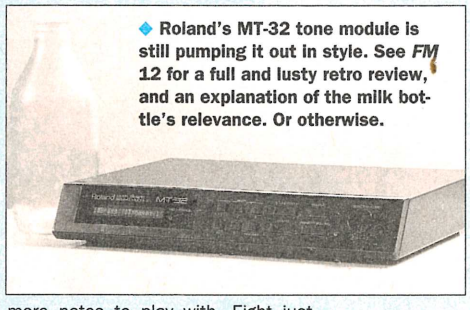
Polyphony	6 note
Multi-timbrality	N/A
Memories	128 in two banks of 64
Keyboard	5 octaves



◆ See page 46 of this *FM* for an in-depth report on Yamaha's acclaimed EMT10 tone module.

Yamaha EMT10 ~£100

Another tiny classic, the EMT-10 offers some terrifically playable sounds for a bargain-basement price. *FM* reader Andrew Ferris of Southampton explains: "The piano, choir, guitar and string sounds are great. I mean, really good – fantastic for the money. But I'm selling mine because I need more notes to play with. Eight just aren't just enough for the kind of music I do, so I'm thinking of getting a bigger workstation or a synth."



◆ Roland's MT-32 tone module is still pumping it out in style. See *FM* 12 for a full and lusty retro review, and an explanation of the milk bottle's relevance. Or otherwise.

Polyphony	8 note
Multi-timbrality	2 way – bass plus one other sound
Presets	10
Rack mounting	No

Roland MT-32 ~£150

A classic from way back in 1987, the MT-32 has to be one of the best-value sound expanders around. Some of the sounds are cheesy, but some are truly excellent. And with up to 32-note polyphony there's a lot of music to be made with this tiny little box – especially if you make use of the built-in drum sounds. If you're buying second hand be sure to get a copy of the manual – some of the more obscure features will keep you guessing for months otherwise.

Polyphony	32 partials (up to 32 notes)
Multi-timbrality	8-way plus drums
Memories	128 preset, 32 SysEx editable (lost on power-down)
Rack mounting	No

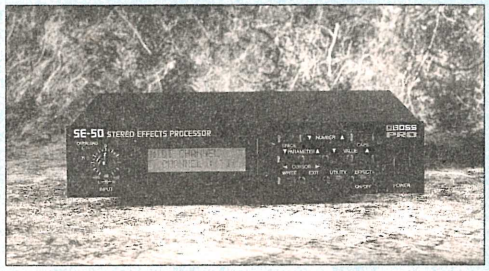
Korg Wavestation ~£700

The synthesizer that launched a thousand evolving textures and tuned percussion loops, the Wavestation is now appearing on the second-hand market at a reasonably affordable price. Although the sounds the Wavestation makes can be excellent and truly original, it's not exactly the easiest synth in the world to program and can take a while to get used to if you're more familiar with sample and synth-type instruments.

Polyphony	32 voice
Multi-timbrality	16 way
Memories	32 multi-sets
Keyboard	5 octave

Boss SE-50 ~£250

Quality digital effects at a bargain price, the Boss SE-50 is one of the better value second-hand effects processors around. With a yummy selection of effects, including pitch shift, delay, reverb, chorus, distortion, overdrive, vocoder, EQ, phase and a flange, a smattering of MIDI control and a relatively friendly interface, the SE-50 is one unit to watch for if you're after some extra effects for your existing set-up.



◆ The bargainous nature of the Boss SE-50 was fully analysed, retro-review-style, in *FM* 9

Effects	Up to six simultaneously
Memories	128 (64 preset, 64 programmable)
MIDI control	Yes
Rack mounting	No

Korg M1R ~£750

The rack-mounting version of the ubiquitous M1, the M1R gives you all those classic sounds in a cuboid case that you can slot away tidily without having another half-acre of useless keyboardage taking up precious studio real-estate – and for slightly less money too. The sounds, effects and features are identical to its justly famed bigger brother, although you'll sometimes come across the M1REX version which has extra PCM sounds as standard.

Polyphony	16 note
Multi-timbrality	8 way
Memories	128 in two banks of 64
Rack mounting	2U size

Roland SH-101 ~£150

Analogue, analogue and more analogue. The SH-101 is a totally analogue monosynth – which means there's no MIDI and you can't play chords on it, but it has loads of real, instantly responsive knobs, switches and sliders. Neil Grant of Shepherds Bush in London explains why he likes his. "I mean, you can just reach out and change the sound. None of this data-entry crap. The sound is really acid too. I think it sounds better than a TB-303! And with the built-in sequencer you can make some mad, mad noises." See *FM* 10 for more on this much-sought-after synthesizer.

Type	Analogue monophonic synthesiser
Oscillators	One, with sub-osc for a fatter sound
Keyboard	32 note with transpose
Other features	100-note sequencer, white-noise

Yamaha QY10 ~£150

A miniature module with a deceptively large sound, this was originally billed as the 'walkstation' – just fill it up with batteries and make your music anywhere you like. The QY10 combines the features of a sound module, a drum machine (with 76 preset patterns) and a chord-based MIDI sequencer, all packed into a tiny case.

FM reader Grant Jarrett of Devizes in Wiltshire thinks the QY10 is a truly excellent little machine. "Not all the sounds are quite up to snuff, but they're pretty good for 150 quid. The programming system is brilliant, though. I've learned a lot about music by playing with mine." Just don't do it in public.

Polyphony	28 note
Presets	31 AWM sounds (including 1 drum kit)
Sequencer	8 tracks, 6000 notes, real and step-time programming
Timing	resolution 1/32 note
Keyboard	Rubber keypad

Roland W-30 ~£900

Roland's total sampling workstation, with 16-note polyphony, 12-bit companded sampling (equivalent to 16 bits of dynamic range), a 1Mb built-in sample memory and analogue-sounding filters.

The W-30 could be a lot easier use – even if you can edit the sounds on the LCD while playing – and the sequencer isn't really a patch on a dedicated computer-based package like *Cubase* or *Notator Logic*. But the W-30 can be the business live. If you go in for a big pre-production job at home you can just slip it a disk or two on the night and you're away.

One aside: some people advertise W-30s citing The Prodigy's Liam Howlett as a user. However, he only uses the sequencer and reckons the sounds are a bit crap.

Polyphony	16 notes
Multi-timbrality	16 way
Sampling resolution	12-bits compressed/expanded
Max sample time	14.4 sec
Keyboard	5 octave

Korg MonoPoly ~£150

A much-ignored analogue classic, the MonoPoly was Korg's first attempt at a true analogue polysynth. In Poly mode you can play chords of up to four notes. In Mono mode it turns into a slavering beast of a mono-synth, with a total of four oscillators tracking in parallel.

The sound is well huge, even though there's only one filter in the whole machine. It has loads of real knobs. And there's even a nifty arpeggiator for bubbly ambient runs and effects.

Oscillators	Four
Keyboard	36 note
Other features	Arpeggiator, single filter

Sound and Studio

Cast your eyes over the prices and specifications of hundreds of current sound and studio products. Tracking down that ideal bit of kit has never been so easy.

CONTROLLERS

Note: Includes keyboards, guitar controllers, wind controllers, breath controllers, trigger interfaces and drum pads.

MANUF	MODEL	£PRICE	TYPE	DESCRIPTION
Akai	ME 35T	269	Audio-MIDI trigger	Receives an input either from drum pads or acoustic drums via a mic and converts them into MIDI messages
Akai	MX1000	1,199	Keyboard	Fully programmable MIDI keyboard which, with the the PM76 piano card (£499), turns into a full digital piano
Fatar	Studio 49	119	Keyboard	49 keys, velocity-sensitive
Fatar	Studio 61	199	Keyboard	61 keys, velocity-sensitive
Fatar	Studio 90	599	Keyboard	88 keys, hammer action, splittable at any point, both zones transposable, flightcase option
Fatar	Studio 90 Plus	699	Keyboard	88 keys, hammer action, pitch and mod wheels, 3 MIDI Outs, flightcase option
Kawai	MDK61	309	Keyboard	61 keys, velocity sensitive, 10 velocity curves, transmits 1,000 program change messages, 10 program change memory
Novation	MM10	149	Keyboard	Convenient portable 2-octave controller for Yamaha's tiny QY10 sequencing workstation
Novation	MM10-X	160	Keyboard	Velocity sensitive, 2-octave, transposable over 8, pitch and assignable controller wheel, usable with Yamaha QY10/20
Novation	Midicon	85	Keyboard	Velocity sensitive, 2-octave, transposable over 8, pitch wheel, sustain jack
Orla	Commander C80	1,199	Keyboard	88 keys, weighted, velocity and channel aftertouch sensitive, four keyboard zones
Peavey	DPM C8	1,799	Keyboard	88 piano action keys, 3 control wheels, 3.5-inch disk drive, 8 programmable zones, 2 MIDI In, 4 MIDI Out
Peavey	PC-1600	329	Table unit	Programmable controller – 100 scene memories, 50 pre-sets
Q-Logic	K..AT	79	Table unit	14-function remote controller for Atari ST computers
Q-Logic	Mac K..AT	110	Table unit	21-function remote controller for Apple Mac computers
Roland	A-30	535	Keyboard	76-note mother keyboard with velocity sensitive keys
Roland	AX-1	535	Keyboard	45-key unit, M-ROS compatible
Roland	PC-150	139	Keyboard	Aimed at the computer music market, this keyboard is the perfect companion to the CM sound modules
Roland	PC-200GS	199	Keyboard	Advanced version of the PC-150 with modulation, pitch bend and a data-entry slider
Roland	SD-35	759	Portable	MIDI File player with built-in Sound Canvas sounds
Yamaha	KX5B	449	Keyboard	A remote MIDI keyboard enabling you to strut like a guitarist
Yamaha	MDF2	299	Table unit	Bulk storage and playback of MIDI files
Yamaha	KX88	1,545	Keyboard	88 weighted keys, pitch bend and modulation wheels, four controllable sliders
Yamaha	QY10	272	Portable	Sequencer with PCM voice module. Can arrange up to 56 voices in 100 patterns
Yamaha	QY20	399	Portable	As for QY10, but with more memory and mini-keys

EFFECTS, DIGITAL

Note: Includes all rackmount and floor-panel effects units, including dedicated effects and multi-effects processors. Single-effect guitar pedals are not included.

MANUF	MODEL	SUPPLIER	£PRICE	TYPE	Number of Effects	Simult Effects	DESCRIPTION
ART	DRX-2100	Harman	499	Multi	60	10	Studio processor – big brother of Alpha
ART	MDC-2001	Harman	399	Multi	5	5	Studio processor featuring five effects which can all be combined
ART	Multiverb Alpha 2	Harman	399	Multi	60	7	Good mid-range. A unique dial for entering data
ART	Multiverb LTX	Harman	199	Multi	9	3	Good starting unit for those on a tight budget
ART	SGX Nightbass	Harman	669	Multi	70	20	As SGX 2000 but for bass players
ART	SGX-LT	Harman	299	Multi	9	3	As LTX, but with added guitar effects
ART	SGX-T2	Harman	499	Multi	70	12	As SGX-2000, but without the valve pre-amp
ART	SGX2000	Harman	669	Multi	70	20	With valve pre-amp, this is aimed at the guitarist, featuring a wealth of quality effects
Alesis	Microverb 3	Sound Tech	249	Multi	16	1	A straightforward combined reverb/delay unit with good pre-sets
Alesis	Midiverb 3	Sound Tech	339	Multi	12	4	Rather thin on programmability, but MIDI control makes up for it
Alesis	Quadraverb GT	Sound Tech	599	Multi	22	4	Impressive and wide-ranging with virtually all the straight effects
Alesis	Quadraverb Plus	Sound Tech	499	Multi	16	4	Much the same as GT without distortion settings
Boss	ME-10	Roland	699	Multi	10	10	Advanced version of ME-6 with more effects and a built-in tuner
Boss	ME-6	Roland	299	Multi	6	6	A slick looking and good sounding floor unit for guitarists
Boss	ME-6B	Roland	299	Multi	6	6	New version of the ME-6 for bass players
Boss	Pro SE-70	Roland	649	Multi	35	16	Half-rack unit with reverb, chorus, 20-tap delay, vocoder, vocal canceller and more
Boss	SE-50	Roland	499	Multi	6	19	A small but impressive unit with good, clean sounds, including Vocoder
Digitech	DSP 16	JHS	315	Multi	16	1	Easy to use machine, but a bit weak compared with others in its price range
Digitech	DSP 256XL	JHS	489	Multi	24	4	Well priced, with good design for taking on the road
Digitech	GFX1	JHS	599	Guitar Multi	11	6	Limited frequency response range. Distortion suited to guitar sounds
Digitech	GSP21	JHS	949	Multi	24	10	Professional-sounding guitar effects unit with foot controller included
Digitech	RDS-4000	JHS	299	Delay	9	1	Four-second version of RDS-1000
Digitech	RDS-8000	JHS	369	Delay	9	1	Eight-second version of RDS-1000
Digitech	TSR24	JHS	899	Multi	55	8	24-bit processor. Facility to build up your own effects chain
Digitech	Twin-tube Preamp	JHS	599	Multi	7	6	Combines two tube pre-amps with a handful of effects for a rich, full guitar sound
Digitech	Vocalist	JHS	999	Harmoniser	5	5	Award-winning vocal harmoniser with a series of realistic voice effects
Digitech	Vocalist II	JHS	929	Harmoniser	5	5	Up to 5-part harmonies possible. 50 song lists. Very programmable
Digitech	WP1D	JHS	199	Pitch Shifter	3	1	Good floor-based unit for adding chorus, pitch bend and note shifts to guitars
Dynacord	DDL 204	Shuttlesound	1,158	Delay	1	1	Professional 24-bit processor, 48kHz sampling rate, max delay of 2,500ms
Dynacord	DLS 223	Shuttlesound	658	Rotary sim	1	1	

EFFECTS, DIGITAL (continued)

MANUF	MODEL	SUPPLIER	£PRICE	TYPE	Number of Effects	Simult Effects	DESCRIPTION
Dynacord	DRP 10	Shuttlesound	869	Multi effects	17	6	Good reverb algorithms and easy programming
Ensoniq	DP/4	Sound Tech	1,299	Multi	21	4	Extremely powerful and flexible
Eventide	DSP4000	HHB	4,694	Multi	n/a	n/a	Fearsome near-ultimate multi-effects processor with 18-bit converters and digital I/O
Korg	A1	Korg	1,277	Multi	59	7	Lots of sounds, digital output and facility to design your own effects algorithms
Korg	A2	Korg	816	Multi	44	6	Cut-down version of A1
Korg	A4B	Korg	389	Multi	8	8	Unit for bass player
Korg	A4GR	Korg	389	Multi	8	8	Unit for guitarist
Korg	A5 Guitar	Korg	235	Multi	5	5	Similar to A5 bass but geared to guitar
Korg	A5 Bass	Korg	235	Multi	5	5	Floor-based unit with straight effects geared towards bass player
Korg	A5 FX	Korg	235	Multi	5	5	A5 for keyboard players with a foot pedal unit
Lexicon	Alex	Stirling	399	Multi	16	1	16 quality effects, including reverb. No MIDI
Lexicon	300 Digital effect system	Stirling	3,798	Multi	4	1	Good sound and super control plus digital I/O
Lexicon	LXP1	Stirling	459	Multi	4	1	Additional programmer needed to access custom settings
Lexicon	LXP15	Stirling	979	Multi	2	2	Easier to use than LXP1 nd LXP5, with impressive sound
Lexicon	LXP5	Stirling	459	Multi	4	2	Two simultaneous sounds add depth, but still needs MRC programmer
Lexicon	PCM 70	Stirling	2,099	Reverb/Delay	4	1	Ageing, but sounds impressive
Peavey	Addverb 2	Peavey	289	Reverb/Delay	5	1	Competent with few frills
Peavey	Bass-Fex	Peavey	499	Bass Multi	22	8	Eight simultaneous effects for bass players, with flexible operation
Peavey	DSR1000	Peavey	305	Multi	5	5	A reverb unit, but more programmable than some in the range
Peavey	Multifex	Peavey	959	Multi	6	4	Contains four independent processors for a massive range of control
Peavey	Pro-Fex	Peavey	699	Multi	18	168	Massive flexibility with full level control over the 16 simultaneous effects
Peavey	Pro-Fex 2	Peavey	499	Guitar Multi	16	8	Aimed at the guitarist – slightly less powerful than Pro-Fex
Peavey	QFX 4x4	Peavey	919	Multi	20	5	Four DSR 1000 processors handling five effects – used separately or together
Peavey	SDR 20/20	Peavey	649	Multi	35	8	A mass of effects and an easy-to-use interface
Peavey	Ultraverb 2	Peavey	319	Multi	6	4	600 locations for storing patches. Data can also be edited via MIDI
Peavey	Univerb 2	Peavey	229	Reverb	2	1	A wide range of reverbs and a simple echo. A nice, rich sound
Roland	SDE-330	Roland	749	Delay	TBA	TBA	Eight tap delays possible, positioned within a 3D soundfield
Roland	SRV-330	Roland	749	Reverb	TBA	TBA	Uses version of Roland Sound Space for illusion of 3D sound. 128 sounds
Sabine	FBX-900	Shuttlesound	492	Anti-feedback	1	1	Single unit rackmount which eliminates feedback during live performance. Mono only
Sony	DPS-D7	Sony	816	Delay	7	1	Serious professional unit with all the features of a high-end delay
Sony	DPS-M7	Sony	995	Modulator	10	1	Concentrates on effects like chorus, flange and pitch shifting, all done very well
Sony	DPS-R7	Sony	934	Reverb	10	1	As D7, but with reverb effects
TC Elec's	M5000	Amp Sounds	2,983	Multi	TBA	TBA	Features AES/EBU, SPDIF, SMPTE, SCSI, 3.5-inch disk drive, two analogue ins, outs
TC Elec's	TC2290	Amp Sounds	1,522	Delay/Mult	7	4	Advanced delay unit including ability to produce 3D sound movement
Yamaha	EMP-100	Yamaha	268	Multi	2	6	Goof effects but difficult programming
Yamaha	EMP-700	Yamaha	449	Multi	28	2	Loads of effects that can be organised in a very efficient manner
Yamaha	FX-500	Yamaha	385	Multi	10	8	Aimed towards guitarist, this unit loses out because of its lack of memory
Yamaha	FX-900	Yamaha	665	Multi	12	8	Expansion of FX-500
Yamaha	FX550	Yamaha	349	Multi	50	5	Update to FX500. Multi-effects, including pitch-shift, amp simulator
Yamaha	GW50	Yamaha	599	Multi	50	5	50 effects programs, tone module plus preset rhythms and accompaniment
Yamaha	R100	Yamaha	189	Reverb	1	1	Simple, straight unit with no frills
Yamaha	REV5	Yamaha	1,399	Reverb	1	1	A good range of reverb effects make this a classic machine
Yamaha	SPX 1000	Yamaha	1,119	Multi	22	5	Good guitar effects and the ability to actually sample short sections
Yamaha	SPX900	Yamaha	699	Multi	20	5	Updated version of SPX90
Yamaha	SPX990	Yamaha	735	Multi	43	3	20-bit advanced pitch-change system, 50 presets, 100 user locations
Zoom	9000S	MCM	299	Guitar Mult	5	5	Neat little table-top box with easy programming and decent sound
Zoom	9002	MCM	279	Guitar Mult	12	6	Bolts onto guitar giving good range of effects
Zoom	9030	MCM	549	Multi	49	7	Half rack digital stereo multi effects
Zoom	9120	MCM	449	Multi	20	3	Rack mount with advanced effects processor including two-second echo
Zoom	9200	MCM	2,349	Multi	31	12	Advanced reverb processor with four processors you can access separately or combined

HOME KEYBOARDS – standard keys

Note: This section covers keyboards with normal-size keys.

MANUF	MODEL	£PRICE	SOUNDS	POLYPH	DESCRIPTION
Casio	CT-636	149	30	10	Extra octave and bank of 465 tunes, but not so many pre-set sounds and rhythms
Casio	CT-647	169	120	16	Built-in reverb, chord memory and a jukebox function that plays 40 tunes
Casio	CT-657	179	110	12	Enables you to record up to 1,250 notes of a tune and edit the sounds
Casio	CT-700	239	100	12	Bigger version of the CT-657 with MIDI and a touch-sensitive keyboard, but no sound editing
Casio	CT-770	369	100	12	A great leap in price for not a tremendous amount more
Casio	CT-840	169	100	16	Features a 'Do-Re-Mi' guide for teaching you how to play
Casio	CTK-1000	549	100	16	New IXA sound source, 8-part m/timbral, digital effects, 3-track song memory
Farfisa	F1	2,499	125	34	Mega workstation, with PCM & FM sounds, card slot, 70,000-note sequencer, effects, disk drive, two analogue inputs
Farfisa	F5	1,799	125	34	Budget version of above
Kawai	FS2000	1,049	100	12	The Super Lab is a souped-up FS800 with disk drive and external input level mixer for total performance control
Kawai	FS640	199	100	12	Basic features including 30 rhythm patterns and auto-accompaniment
Kawai	FS690	289	100	12	100 rhythms now, an 11-parameter synth section and a 3,500 note song recorder
Kawai	FS730	229	100	12	Adds stereo output and dynamic touch response
Kawai	FS750	289	100	12	Adds song recorder and pattern maker, plus dual sound variations
Kawai	FS780	339	100	12	Adds registration memory, three-song recorder and arrangement expander
Kawai	FS800	499	100	12	A more professional approach with this keyboard – modulation and pitch-bend wheels, plus advanced synth editing
Kawai	FS900	539	100	539	As FS780 but with digital mixing section, modulation wheel
Roland	E-16	458	223	24	GM format, 64 styles, 8 drum kits, song memory, Sync Intelligence waits for beginner to change chords
Roland	E-36	666	223	28	GM format. Can play SMFs using Roland Music Style cards, Manual Bass Decay (usable with bass pedalboard)
Roland	E-56	1,090	226	28	Similar to E-36 but with 64 user programs, song composer (three 6-track songs)
Roland	E-70	1,469	256	24	Many more functions and features and a big 15W bass speaker on the top-of-the-range version
Roland	E-86	1,649	241	28	Features JV-80 sounds, 56 music styles, disk stores user styles and sounds, plays SMFs from 8-track sequencer
Technics	KN1000	1,549	120	32	Includes an 8-track sequencer and built-in disk drive
Technics	KN470	599	100	32	Dynamic PCM sounds, 100 PCM rhythms, 3-track sequencer (1,400 notes) plus two panel memories and reverb
Technics	KN550	599	100	32	Some gorgeous sounds and good polyphony makes this more than your average home keyboard
Technics	KN570	799	200	32	Dynamic PCM sounds, 100 PCM rhythms, reverb (8 types), 3-track sequencer (1,750 notes), four panel memories
Technics	KN650	899	200	32	Twice as many sounds as the 550 plus the facility to record your own songs into the keyboard's memory
Technics	KN750	1,199	200	32	Dynamic PCM sounds, 100 PCM rhythms, reverb. 8-track sequencer, 5-track composer for rhythms plus disk drive
Technics	KN2000	1,199	250	64	200 rhythms plus orchestrated accompaniment. 16-track sequencer, disk drive, 61 keys, four speakers and biiig LCD
Yamaha	PSR-100	129	100	28	The PSR-3 with stereo sound
Yamaha	PSR-19	149	100	28	A bigger keyboard – five octaves – plus on-board reverb and echo
Yamaha	PSR-200	199	100	28	AWM sampled sounds replace the FM ones. Keyboard percussion, chord memory and 50 accompaniment styles
Yamaha	PSR-300	279	100	28	MIDI, touch-responsive keyboard and dual voicing added to PSR-200 spec
Yamaha	PSR-400	389	100	28	Includes memories for song and voice data and a pitch-bend wheel
Yamaha	PSR-500	489	100	28	Reverb effects such as hall and room added to PSR-400 spec
Yamaha	PSR-5700	1,599	100	38	Loads of features, intelligent accompaniment section and disk drive
Yamaha	PSR-6700	1,799	100	40	Monster keyboard with 33 effects, programmable drum pads, a modulation wheel and disk drive
Yamaha	PSR-SQ16	1,199	177	56	Bold hybrid between electronic keyboard and workstation. General MIDI, 16–track, sequencer, comprehensive effects
Yamaha	PSR-600	699	100	28	Latest mid-price Yamaha has 103 accompaniment styles, disk drive

HOME KEYBOARDS – small keys

Note: This section covers 'mini-key' keyboards (usually for beginners).

MANUF	MODEL	£PRICE	SOUNDS	POLYPH	DESCRIPTION
Casio	SA-8	19	25	2	Tiny keys and short keyboard
Casio	SA-9	19	100	8	Smaller version of SA11. Available in black, red and green
Casio	SA-11	29	100	4	Bigger keys, more sounds and greater polyphony

HOME KEYBOARDS – small keys (continued)

MANUF	MODEL	£PRICE	SOUNDS	POLYPH	DESCRIPTION
Casio	KS01	49	10	2	Special design for young children's first keyboard
Casio	MA-120	59	100	8	Four-octave keyboard and 100 pre-set rhythms
Casio	MA-220	99	100	8	MA-120 expanded to include five percussion pads and 100-chord memory
Casio	PA31	59	100	4	Like SA21 but with sampled sounds and variable pitch wheel
Casio	KS02	79	8	3	Has ROM pack self-teach system
Casio	MA-220	89	100	8	MA-120 expanded to include five percussion pads and 100-chord memory. Also 15 songs with minus-one play facility
Casio	VA-10	150	100	6	32 keys, 100 tones, several effects including pitch shift, harmoniser and flange. 12 rhythms, no MIDI
Kawai	MS210	101	16	10	Not many pre-set sounds, but 192 variations available
Yamaha	PSS-50	39	100	8	Two and a half octaves, FM sounds and 19 rhythms
Yamaha	PSS-190	59	100	8	Three octaves, four drum pads and stereo sound
Yamaha	PSS-290	69	100	8	Four octaves plus transposition function and a chord memory
Yamaha	PSS-390	99	100	8	Includes primitive, 7-parameter synth

KEYBOARD SYNTHESIZERS

Note: This section includes all keyboard synths, including workstations.

MANUF	MODEL	SUPPLIER	£PRICE	TYPE	MULTIT	POLYPH	DESCRIPTION
E-mu	MPS Plus	E-mu	1,399	Synth	16	32	Update on the MPS. Features include 8Mb of ROM sounds, pop/rock/orchestral
E-mu	Proteus MPS	E-mu	1,295	Synth	16	32	High quality sounds and good effects make this a good performance keyboard
Ensoniq	KS-32	Sound Tech	1,895	Synth	16	32	Machine with features of SQ-2 and piano weighted keys
Ensoniq	SD-1	Sound Tech	2,345	Workstation	24	32	24-track sequencer and 24-bit effects make this an impressive sounding instrument
Ensoniq	SQ-1 Plus	Sound Tech	1,399	Synth	16	32	Powerful synth with 180 sounds and 24-bit effects, but only a velocity sensitive keyboard
Ensoniq	SQ-2	Sound Tech	1,599	Synth	16	32	Adds aftertouch and 76 extra keys to SQ-1
Ensoniq	TS10	Sound Tech	1,999	Workstation	12	32	300 sounds, plus 254 waveforms. 24-track sequencer. 74 effects algorithms, disk drive
GEM	S2	Key Audio	1,699	Workstation	16	32	Surprisingly useful with fully useable sequencer section
GEM	S3	Key Audio	1,899	Workstation	16	32	Larger version of S3 with 76-note keyboard
GEM	WS1	Bluebridge	799	Workstation	16	32	As WS1D but without disk drive
GEM	WS1D	Bluebridge	1,099	Workstation	16	32	Smaller keyboard than WS2 but with built-in disk drive
GEM	WS2	Bluebridge	1,599	Workstation	16	32	Advanced workstation machine with high specification level
Kawai	K11	Kawai	949	Synth	32	32	128 GM + 128 Special Preset sounds + drums. 2 MIDI Ins and Outs, Mac interface
Kawai	K4	Kawai	919	Synth	8	16	Brilliant sounds including drums and effects at a bargain price
Korg	i2	Korg	2,750	Workstation	16	32	As below, but with 76 keys
Korg	i3	Korg	2,199	Workstation	16	32	AI² synthesis, PCM wave memory, multi effects, 16-track sequencer plus accompaniment
Korg	M1	Korg	992	Workstation	8	16	Now outmoded by O1/W range, still favourite with musicians
Korg	O1/W	Korg	1,645	Workstation	16	32	Current flagship – uses same sound system as Wavestation Plus sequencer
Korg	O1/WFD	Korg	1,899	Workstation	16	32	Standard O1/W with built-in disk drive to store sound and sequence data
Korg	O1/WPro	Korg	2,450	Workstation	16	32	As WFD but with full-size 76-note keyboard
Korg	O1/Wpro-X	Korg	2,999	Workstation	16	32	Largest machine with 88-note weighted keyboard
Korg	T1	Korg	3,780	Workstation	8	16	88-note weighted keyboard, large memory, built-in drive and facility to load samples
Korg	T2 EX	Korg	2,999	Workstation	8	16	Smaller version of T1 with 76-note keyboard
Korg	T3 EX	Korg	2,450	Workstation	8	16	Portable 61-key version of T series
Korg	Wavestation EX	Korg	1,495	Synth	16	32	One of most expressive synths available with more PCM sounds that its predecessor
Korg	X3	Korg	1,399	Workstation	16	32	200 programs plus 128 GM programs. Disk drive, 16-track sequencer and effects
Kurzweil	K2000	Kurzweil	2,769	Workstation	16	24	Near classic Kurzweil sound in a more affordable system. Uses version 1.3 software
Kurzweil	K2000S	Kurzweil	3,549	Workstation	16	24	Adds sampling option to K2000 – reads Akai, Ensoniq and Roland format disks
Peavey	3SE Plus	Peavey	1,499	Synth	16	16	1Mb sample RAM, 9-track sequencer, effects, drums. Can be used with SX sampler
Peavey	DPM 2	Peavey	999	Synth	16	16	Solid synth with good sounds – optional upgrade to include sequencer
Peavey	DPM 2	Peavey	999	Synth	16	16	61 keys, 4Mb ROM samples, 80,000 note sequencer, combination programs, 10 drum kits
Peavey	DPM 2Si	Peavey	TBA	Synth	16	32	76 keys, 8Mb ROM samples, 80,000 note sequencer, 10 drum kits, 4 audio outs
Peavey	DPM3-SE plus	Peavey	1,499	Synth	16	16	Adds disk drive, sequencer and 0.5Mb sample memory to DPM 2
Roland	E-16	Roland	458	Synth	6	24	Bottom of a new range of low cost synths based on GS sounds
Roland	E-36	Roland	666	Synth	6	28	As E-16, with greater polyphony and more features for beginners
Roland	E-56	Roland	1,090	Synth	6	28	As E-36 but has 226 sounds and 64 user programs, plus more advanced song composer
Roland	E-86	Roland	1,649	Synth	6	28	Top of the range, uses JV-80 sounds as well as a host of features
Roland	JD-800	Roland	2,400	Synth	6	24	Brave attempt to return to analogue programming, but lacking in multi timbral voices
Roland	JV-1000	Roland	2,140	Workstation	16	32	76 keys, 8-track sequencer, expandable to 56-note polyphony
Roland	JV-30	Roland	995	Synth	16	24	Good solid machine aimed at basic sequencer use
Roland	JV-80	Roland	1,599	Synth	7	24	Limited multi-timbral voices limits sequencer use, but good sounds and editing
Roland	JW-50	Roland	1,685	Workstation	16	24	Best suited to those wanting to create tunes and access sounds quickly
Soltan	MS5	Bluebridge	1,749	Synth	9	35	Useful machine offering a mixture of sampled and synthesised sounds plus split keyboard
Yamaha	SY35	Yamaha	599	Synth	16	16	Good entry-level keyboard with 120 voices
Yamaha	SY85	Yamaha	1,499	Workstation	16	32	Easy to operate with wonderfully epic sounds
Yamaha	SY99	Yamaha	2,499	Synth	16	32	Top of the range – bigger keyboard and better effects than SY77

MICROPHONES

Note: This section covers microphones of £500 and under.

MANUFACTURER	MODEL	SUPPLIER	£PRICE	DESCRIPTION
AKG	D70M	AKG	37.60	Cardioid dynamic with 3m lead and 1/4-inch jack plug
AKG	D80	AKG	64.63	Cardioid dynamic with 5m detachable lead and 1/4-inch jack plug
AKG	D90S	AKG	86.95	Cardioid dynamic, lockable on/off switch, stand adaptor
AKG	D95S	AKG	103.40	Hypercardioid dynamic, lockable on/off switch, stand adaptor
AKG	D112	AKG	204.45	Bass dynamic, integral windscreen, stand adaptor
AKG	D125	AKG	132.78	Cardioid dynamic, stand adaptor
AKG	D190	AKG	143.35	Cardioid dynamic, stand adaptor
AKG	D190S	AKG	159.80	As D190 with on/off switch
AKG	D310	AKG	139.83	Cardioid dynamic with stand adaptor
AKG	D321	AKG	165.98	Hypercardioid dynamic
AKG	D330MkII	AKG	177.43	Hyper dynamic, 2 X 3 position controls for bass cut and presence
AKG	C1000S	AKG	272.60	Cardioid vocal condenser, on/off switch, battery/phantom power
AKG	C525S	AKG	159.80	Hyper electret condenser, on/off switch, battery/phantom power
AKG	C535	AKG	383.05	Robust vocals condenser, pre-attenuation, bass cut
AKG	C562CM	AKG	137.48	Panel-mounted boundary layer condenser, phantom power
AKG	C401B	AKG	72.85	Electret mini acoustic guitar & bass pickup, battery power
AKG	C401PP	AKG	109.28	Electret mini acoustic guitar & bass pickup, phantom power
AKG	C402B	AKG	84.60	Electret mini hi-freq guitar pickup, battery power
AKG	C402PP	AKG	84.60	Electret mini hi-freq guitar pickup, phantom power
AKG	C406B	AKG	121.03	Electret mini instrument mic, battery power
AKG	C406PP	AKG	155.10	Electret mini instrument mic, phantom power
AKG	C408B	AKG	113.98	Electret mini percussion mic, battery power
AKG	C408PP	AKG	150.40	Electret mini percussion mic, phantom power
AKG	C409B	AKG	129.25	Electret mini wind mic, battery power
AKG	C409PP	AKG	157.45	Electret mini wind mic, battery power
Audio Technica	AT804	Audio Technica	107.63	Omni moving coil dynamic
Audio Technica	AT811	Audio Technica	110.00	Uni studio condenser
Audio Technica	AT813	Audio Technica	115.16	Uni studio condenser
Audio Technica	AT813R	Audio Technica	173.63	As AT813 with phantom power
Audio Technica	AT822	Audio Technica	290.67	XY stereo condenser for DAT recording
Audio Technica	AT825	Audio Technica	349.92	Uni stereo dual condenser
Audio Technica	AT859B	Audio Technica	197.87	Cardioid condenser, battery/phantom power
Audio Technica	AT841A	Audio Technica	247.93	Omni boundary condenser

MICROPHONES (continued)

MANUFACTURER	MODEL	SUPPLIER	£PRICE	DESCRIPTION
Audio Technica	AT854R/W	Audio Technica	189.56	White version of AT854R
Audio Technica	AT847R	Audio Technica	189.56	Uni condenser table/ceiling mount
Audio Technica	AT847R/W	Audio Technica	210.89	White version of AT847R
Audio Technica	AT851A	Audio Technica	269.11	Uni boundary condenser
Audio Technica	AT851A/W	Audio Technica	297.65	White version of AT581A
Audio Technica	AT871R	Audio Technica	344.33	Phantom power boundary
Audio Technica	AT871R/W	Audio Technica	378.74	White version of AT871R
Audio Technica	AT4031	Audio Technica	221.69	Fixed charge studio cardioid
Audio Technica	ATM10	Audio Technica	90.19	Omni condenser/battery
Audio Technica	ATM11	Audio Technica	92.50	Cardioid condenser/battery
Audio Technica	ATM11/R	Audio Technica	144.76	Cardioid condenser/phantom power
Audio Technica	ATM25	Audio Technica	156.06	Cardioid dynamic
Audio Technica	ATM33/R	Audio Technica	189.52	Uni condenser/phantom power
Audio Technica	ATM35	Audio Technica	216.62	Cardioid condenser battery/phantom power
Audio Technica	ATM41HE	Audio Technica	154.52	Hi energy dynamic vocal hypercardioid
Audio Technica	ATM61HE	Audio Technica	173.88	Hi energy dynamic vocal hypercardioid
Audio Technica	ATM63HE	Audio Technica	116.96	Hi energy dynamic vocal hypercardioid
Audio Technica	ATM73A	Audio Technica	144.10	Headset cardioid condenser battery/phantom power
Audio Technica	PR022A	Audio Technica	40.36	Uni moving coil dynamic hi/lo impedance
Audio Technica	PR04H	Audio Technica	57.16	Uni moving coil dynamic – 5K ohms
Audio Technica	R04L	Audio Technica	57.16	Uni moving coil dynamic – 250 ohms
Audio Technica	PR07A	Audio Technica	104.94	Uni condenser guitar mic – 600 ohms
Audio Technica	PR08D	Audio Technica	67.53	Head-worn dynamic drum mic (sic) – 800 ohms
Audio Technica	PR09D	Audio Technica	85.76	Hyper moving coil dynamic – 600 ohms
Audio Technica	PR010E	Audio Technica	96.49	Hi energy dynamic hypercardioid – 600 ohms
Electrovoice	MC100	Shuttlesound	45	Budget cardioid dynamic
Electrovoice	MC150	Shuttlesound	55	Improved version of MC100
Electrovoice	MC200	Shuttlesound	89	Improved version of MC150
Electrovoice	BK1	Shuttlesound	197.40	Cardioid condenser, on/off switch, battery/phantom
Electrovoice	N/D857B	Shuttlesound	397.15	Supercardioid vocal dynamic, variable bass roll-off
Electrovoice	N/D757B	Shuttlesound	270.25	Supercardioid vocal dynamic, variable bass roll-off
Electrovoice	N/D457B	Shuttlesound	235	Hypercardioid close up vocal dynamic
Electrovoice	N/D357B	Shuttlesound	176.25	Supercardioid vocal dynamic
Electrovoice	N/D257B	Shuttlesound	117.50	Cardioid background vocal dynamic
Electrovoice	N/D408B	Shuttlesound	225.60	Supercardioid high output instrument dynamic
Electrovoice	N/D308B	Shuttlesound	199.75	Cardioid high output instrument
Electrovoice	RE20	Shuttlesound	468.83	Cardioid dynamic drum
Electrovoice	RE38N/D	Shuttlesound	466.48	General purpose high output dynamic cardioid, variable EQ
Peavey	PV	Peavey	51.03	Low cost dynamic cardioid
Peavey	PVM38	Peavey	102.12	Humbucking dynamic cardioid
Peavey	PVM45	Peavey	102.12	Humbucking dynamic hypercardioid
Peavey	PVM480	Peavey	131.80	Electret condenser cardioid dynamic
Peavey	PVM380N	Peavey	112.34	Neo-dynamic cardioid vocal
Peavey	PVM580TN	Peavey	112.34	Neo-dynamic hypercardioid vocal
Peavey	PVM535N	Peavey	122.55	Dynamic cardioid vocal
Peavey	PVM520TN	Peavey	143.95	Neo-dynamic cardioid vocal and instrument
Peavey	PVR1	Peavey	91.45	Reference cardioid electret condenser
Sennheiser	MD421U-5	Peavey	327.83	Studio quality cardioid dynamic
Sennheiser	MD422	Sennheiser	403.03	Studio quality cardioid dynamic
Sennheiser	MD441U	Sennheiser	460.60	Studio quality super-cardioid dynamic
Sennheiser	MD918U-3	Sennheiser	146.88	Low cost cardioid dynamic
Sennheiser	MD918U-T	Sennheiser	193.88	As MD918U with on/off switch
Sennheiser	BF509	Sennheiser	179.78	PA/studio quality cardioid dynamic
Sennheiser	MD511	Sennheiser	79.90	Dynamic cardioid vocalist
Sennheiser	MD512	Sennheiser	85.78	As MD511 with on/off switch
Sennheiser	BF518	Sennheiser	146.88	Vocals/instrument dynamic cardioid
Sennheiser	BF521	Sennheiser	277.30	General purpose cardioid dynamic
Sennheiser	BF527	Sennheiser	211.50	Super-cardioid dynamic vocals
Sennheiser	BF530	Sennheiser	257.33	Super-cardioid dynamic vocals, variable proximity
Sennheiser	BF531	Sennheiser	282	Super-cardioid dynamic vocals
Sennheiser	BF541	Sennheiser	381.88	Super-cardioid general purpose dynamic
Sennheiser	BF5032P	Sennheiser	441.80	Super-cardioid condenser vocals, phantom power
Sennheiser	BF5048P	Sennheiser	294.93	Cardioid condenser 'headset'
Sennheiser	K6	Sennheiser	570	Modular power unit, cardoid and short gun capsule kit. Satin black, scratch resistant finish
Shure	SM57	HW	89.30	Classic general purpose cardioid dynamic
Shure	SM59	HW	249.10	Flat frequency response cardioid dynamic
Shure	SM515SDLC	HW	62.28	Dual impedance cardioid dynamic
Shure	SM81LC	HW	444.14	Flat frequency response, condenser studio phantom pwr. instrument mic
Shure	SM94LC	HW	237.35	Medium priced uni instrument & sampling condenser
Shure	SM849LC	HW	165.68	'Budget' uni condenser instrument mic
Shure	Beta 58	HW	250.28	High quality supercardioid dynamic live mic
Shure	Beta 57	HW	243.23	Improved SM57. High output humbucking supercardioid response
Shure	BG 1.0	HW	56.40	Entry level dual impedance cardioid dynamic vocal mic
Shure	BG 2.0	HW	84.60	High output cardioid dynamic vocal mic
Shure	BG 3.0	HW	123.38	Extended bass & treble low noise cardioid dynamic vocal mic
Shure	BG 4.0	HW	206.80	Instrument/recording/sampling cardioid condenser, phantom/batt
Shure	BG 5.0	HW	206.80	Vocal cardioid condenser, battery/phantom power
Shure	SM18BCN	HW	123.38	Surface mount dynamic
Shure	SM91A	HW	329	Surface mount unidirectional condenser
Shure	SM90A	HW	329	Omni version of SM91A
Shure	SM10A	HW	180.95	Headset dynamic vocal
Shure	SM12A	HW	245.58	As SM10A with open air earphone monitor
Shure	10L	HW	34.08	Low cost general purpose dynamic
Shure	12L	HW	42.30	Low cost dynamic vocal
Shure	14L	HW	50.53	Budget stage & vocal dynamic
Shure	16L	HW	84.60	Budget instrument & recording dynamic
Shure	22L	HW	51.70	Supercardioid vocal dynamic
Shure	24L	HW	64.63	'Good looking' supercardioid vocal dynamic
Shure	55SH-2	HW	232.65	Classic 50's looking dynamic
Shure	520D	HW	116.33	Blues harmonica dynamic
Trantec	S2000LM	Trantec	400	Lapel wireless mic system
Trantec	S2000LHM	Trantec	495	Headband wireless mic system
Trantec	S2000M	Trantec	520	Handheld (SM58) wireless mic system
Yamaha	MZ102Be	Yamaha	119	Dynamic vocal mic
Yamaha	MZ103Be	Yamaha	129	Dynamic vocal mic
Yamaha	MZ104	Yamaha	109	Dynamic instrument mic
Yamaha	MZ105Be	Yamaha	109	Dynamic instrument mic
Yamaha	MZ106S	Yamaha	89	Dynamic mic, on.off switch and cable
Yamaha	MZ203Be	Yamaha	179	Dynamic vocal mic
Yamaha	MZ204	Yamaha	179	Dynamic low drum mic
Yamaha	MZ205Be	Yamaha	179	Dynamic high drum mic

PIANOS, DIGITAL

Note: Included are full-size digital pianos, portable keyboards, acoustic with MIDI pianos, rackmount modules and sound-board add-ons.

MANUF	MODEL	SUPPLIER	£PRICE	TYPE	SOUNDS	POLYPH	DESCRIPTION
Akai	PG2	Akai	1,299	Upright	24	16	Features 24 S1000 piano samples for a very good sound
Akai	PG5	Akai	3,599	Grand	24	16	Grand style piano with four-track MIDI recorder/player
Casio	AP3	Casio	1,199	Upright	6	16	Has seven tuning temperaments and variable keyboard scaling
Casio	AP5	Casio	1,399	Upright	8	16	Built-in sequencer and card save ability
Casio	AP7	Casio	1,699	Upright	8	16	Adds built-in CD player for 'playing along' to AP5
Casio	CPS-80	Casio	950	Upright	10	16	88 weighted touch-responsive keys, 2-song memory (1,200 notes), sustain jack
Casio	CPS50	Casio	599	Upright	10	16	76-note, semi-weighted keys. 2-song memory, 20-song demo library
Casio	CPS60	Casio	699	Upright	30	12	Features full auto multi-accompaniment system with 64 rhythms
Clavinova	PF-P100	Yamaha	1,599	Portable	10	32	New sounds and MIDI bring the PF range up to date
E-mu	Proformance	E-mu	349	Rack	15	16	Impressive module with good stereo sound
E-mu	Proformance Plus	E-mu	399	Rack	32	16	More sounds than standard unit
Farfisa	DE20	Farfisa	399	Portable	15	12	61 keys, sustain, spatial stereo, vibrato, X-fade, split, dual mode, 900-note sequencer
Farfisa	DP18	Farfisa	350	Portable	8	12	61 keys, chorus, sustain, 3,000-note sequencer, pitch control, transposer
Farfisa	DPR22	Farfisa	399	Portable	15	14	61 keys, sustain, vibrato 15 rhythms, intro/ending/fill, 900-note sequencer
GEM	GPS2000	Bluebridge	4,399	Grand	24	16	Impressive with nice playing action and piano sound
Kawai	CA130	Kawai	120	Upright	7	15	76 keys, 6 temperaments, touch curve selection, transpose
Kawai	CA230	Kawai	144	Upright	7	15	88 keys, reverb, 2-track sequencer (5,000 notes), metronome, touch curve selection
Kawai	CA330	Kawai	160	Upright	7	15	88 wooden keys, reverb, metronome, touch curve selection
Kawai	CA500	Kawai	1,699	Upright	10	32	High quality, basic-spec unit with 30 rhythm patterns
Kawai	CA600	Kawai	1,999	Upright	10	32	Adds higher-power amp to 500 spec
Kawai	CA800	Kawai	1,299	Upright	14	32	Adds extra sounds and split keyboard to 600 spec
Kawai	MR120	Kawai	999	Upright	5	32	Basic 88-note keyboard model
Kawai	MR210	Kawai	1,299	Upright	9	32	Adds dual tone and some effects to basic spec
Kawai	PV35	Kawai	2,595	Upright	25	32	High-spec, with split/dual keyboard, arrangement expander and built-in disk drive
Korg	C15	Korg	1,199	Upright	5	16	Good piano with no frills
Korg	C25	Korg	1,345	Upright	5	16	As C15 but with a few effects
Korg	C35	Korg	1,550	Upright	6	16	Extra sound and sequencer over C25
Korg	C55	Korg	1,999	Upright	10	32	Top of the range upright from Korg
Korg	SGX1D	Korg	2,169	Portable	4	12	88-note weighted keyboard. Large array of MIDI options, a good mother keyboard
Korg	C45	Korg	1,752	Upright	10	18	More sounds than C35
Kurzweil	MK IV	Kurzweil	2,450	Upright	100	24	Features Kurzweil's classic range of piano samples
Kurzweil	Mk250	Kurzweil	POA	Grand	86	32	Grand version of Mk X
Kurzweil	MkV	Kurzweil	POA	Upright	23	32	Sampled sounds, 2-voice layering, 6-pre-set layering, MID, 88-key weighted keyboard
Kurzweil	MkX	Kurzweil	POA	Upright	86	32	Adds advanced auto accompaniment, disk drive and 8-track sequencer
Roland	EP-5	Roland	599	Portable	5	24	61 keys, touch sensitive, song memory
Roland	EP-7IIe	Roland	699	Upright	5	24	76 keys,song memory, stand
Roland	EP-9	Roland	1,199	Upright	8	28	88 keys, song memory, reverb/chorus, 4-song memory
Roland	EP-8	Roland	2,100	Portable	16	28	Good rock piano with good MIDI implementation
Roland	HP-1500	Roland	1,499	Upright	5	24	With advanced SA sound and three selectable touch types
Roland	HP-1800	Roland	2,250	Upright	5	24	As 1500 but with rosewood cabinet and more power
Roland	HP-2800	Roland	2,745	Upright	6	32	As 1800 but with more sounds and balancing-type hammer mechanism
Roland	HP-3700	Roland	2,800	Upright	6	32	As 2700 but with better amplification
Roland	HP-3800	Roland	3,359	Upright	6	32	All features as 2800 but appearance of 3700, finished in walnut and enhanced output
Roland	HP-5700	Roland	5,720	Upright	7	32	Good performance and playing action
Roland	HP-7700	Roland	9,695	Grand	7	32	Superb digital piano with style and good sounds
Roland	KR-350	Roland	1,499	Upright	128	24	76 keys, touch sensitive, RS-PCM sound source, 60 rhythms, stand and stool
Roland	KR-4500	Roland	3,495	Upright	128	28	88 keys, touch sensitive, GM/GS format, 46 effects, ASAS piano sounds, disk drive
Roland	KR-5500	Roland	5,287	Upright	128	28	88 keys, touch sensitive, GM/GS format, disk drive, ASAS sounds, two 60W speakers
Roland	KR-650	Roland	2,500	Upright	28	24	76 keys, touch sensitive, GM/GS format, 46 effects, disk drive, stand and stool
Roland	HP2900G	Roland	2,960	Upright	6	24	Uprated version of 900 with built in GM sequencer and sound module
Rodgers	Harpsichord	Roland	5,995	Upright	13	30	Ultimate twin-manual digital harpsichord. 128 extra sounds accessible via MIDI
Technics	PR170	Panasonic	1,949	Upright	19	32	Less memory and less powerful amp only difference between this and bigger models
Technics	PR270	Panasonic	2,649	Upright	24	32	Less powerful than 370
Technics	PR370	Panasonic	3,149	Upright	24	32	'Concert touch' key weighting and quality sounds make an impressive piano system
Technics	PR5	Panasonic	7,499	Upright	24	32	Digital ensemble concert piano
Technics	PX101	Panasonic	1,500	Upright	6	32	88 keys, 3-stage touch sensitivity, soft/sostenuto/sustain, reverb, MIDI In, Out, Thru
Technics	PX103M	Panasonic	2,000	Upright	8	32	88 keys, 3-stage t.s., brilliance, metronome, 2-track sequencer (4,000 notes)
Technics	PX70	Panasonic	1,149	Upright	6	32	Basic piano featuring Technics' new sound generation system
Technics	PX71	Panasonic	1,249	Upright	6	32	Features Technics' new sound system
Technics	PX73	Panasonic	1,699	Upright	7	32	Built in sequencer and stereo samples add to 71 spec
Technics	PX74	Panasonic	1,999	Upright	10	32	More sounds and a set of speakers are further additions
Yamaha	Clavinova PFP-100	Yamaha	1,799	Portable	10	32	88 piano-feel keys. Four sensitivity settings. Reverb and 3-band EQ
Yamaha	Disklavier DG1F	Yamaha	13,999	MIDI Acoustic	1	–	Great-sounding and wonderful-looking MIDI grand
Yamaha	Disklavier DG2F	Yamaha	14,699	MIDI Acoustic	1	–	Larger DG1F
Yamaha	Disklavier DG3E	Yamaha	15,700	MIDI Acoustic	1	–	Largest in the range
Yamaha	Disklavier MX100B	Yamaha	5,999	MIDI Acoustic	1	–	As MX80, but with improved styling and metronome
Yamaha	Disklavier MX80	Yamaha	4,999	MIDI Acoustic	1	–	Entry level into Disklavier series
Yamaha	MIDI Grand	Yamaha	11,000	MIDI Acoustic	1	–	Grand piano with MIDI retro-fit
Yamaha	PF85	Yamaha	999	Portable	5	16	88 keys, AWM sounds, chorus

AUDIO MIXERS

Note: includes powered mixers and DJ mixers

MANUFACTURER	MODEL	DISTRIBUTOR	£PRICE	DESCRIPTION
3G	Crystal	HW	2,467	16/4/2/1, 4 band EQ, 2 sweep, 8 aux sends
3G	Mynah 8-2	HW	381	8/2, 3 band EQ, 2 aux
3G	Mynah 8-2S	HW	899	As Mynah 8-2 plus 108W p/c power amp
3G	Mynah 12-2	HW	546	12/2 version of Mynah 8-2
3G	Mynah 16-2	HW	634	16/2 version of Mynah 8-2
3G	Mynah 8-4-3	HW	581	Flexible 8/4/2 version of Mynah 8-2
3G	Mynah 12-4-3	HW	722	Flexible 12/4/2 version of Mynah 8-2
3G	Mynah 16-4-3	HW	788	Flexible 16/4/2 version of Mynah 8-2
Allen & Heath	Scepter	Allen & Heath	1,781	12/2 rackmount, 3 band EQ 1 sweep, 4 aux
Allen & Heath	GL3-16	Allen & Heath	2,055	16/4/2 live/monitor desk, 4 band EQ 2 sweep, 6 aux
Allen & Heath	GL3-24	Allen & Heath	2,936	24/4/2 version of GL3-16
Allen & Heath	GL3-EX8	Allen & Heath	939	8 channel expansion for GL series
Allen & Heath	SR Plus 8	Allen & Heath	1,128	8/2, 2 band EQ 2 sweep, 4 aux
Allen & Heath	SR Plus 12	Allen & Heath	1,419	12/2 version of SR Plus 8
Allen & Heath	SR Plus 16	Allen & Heath	1,674	16/2 version of SR Plus 8
Allen & Heath	SR Plus 416	Allen & Heath	2,055	16/4/2 version of SR Plus 8
Allen & Heath	SR Plus 424	Allen & Heath	2,621	24/4/2 version of SR Plus 8
DDA	112405	DDA	2,365	Shamelessly pro-quality 8/4/2 rackmount
Fostex	2412	Fostex	3,760	24 into 12 dual input, 6 aux, MIDI muting, 3 band 2 sweep EQ
Fostex	812	Fostex	999	12 in 8 out, 4 aux, optional MIDI muting, 3 band 2 sweep EQ
Fostex	8200	Fostex	149	MIDI controller for 812
Fostex	820	Fostex	1,880	20 in 8 out, 4 aux, optional MIDI muting, 3 band 2 sweep EQ
Fostex	8201	Fostex	180	MIDI controller for 820
Fostex	2016	Fostex	349	Rack mounting 16/2 or 8/8/2
Fostex	DCM100 & Mixtab	Fostex	399	Fully MIDI controlled mixer, 8 (stereo)/2, one aux, two band EQ
Fostex	MC102	Fostex	399	3U rack mounting 12/2 with cassette
Mackie	CR1604	Key Audio	899	16/2, 3 band EQ, 6 aux

AUDIO MIXERS (continued)

MANUFACTURER	MODEL	DISTRIBUTOR	£PRICE	DESCRIPTION
MTR	3/12-2	MTR	925	12/2 3 band EQ mid sweep, 4 aux, 4 stereo/8 mono returns with EQ
MTR	3/16-2	MTR	1,111	16/2 version of 12/2
MTR	3/12/12/8/2	MTR	1,243	12/8/2, 24 ins on rec/mix, 3 band EQ mid sweep, 3 aux, 3 stereo returns
MTR	3/16/16/8/2	MTR	1,478	16-channel version of 12/8/2
Peavey	Unity 1000/8	Peavey	339	8/2, 3 band EQ, 2 aux
Peavey	Unity 1000/8RM	Peavey	339	8/2, 3 band EQ, 2 aux, rack mounting version
Peavey	Unity 1000/12	Peavey	459	12/2, 3 band EQ, 2 aux
Peavey	Unity 2000/12	Peavey	539	12/2, 3 band EQ, 4 aux
Peavey	Unity2000/SM	Peavey	619	12/2, 3 band EQ, 4 au
Peavey	Unity 2000/16	Peavey	699	16/2, 3 band EQ, 4 aux
Peavey	CD Mix 7032	Peavey	199	DJ mixer, three music ins, mic in, 3 band graphic EQ
Peavey	CD Mix 9072	Peavey	299	DJ mixer, seven music ins, 7 band graphic EQ
Peavey	Prod Mix 502A	Peavey	399	DJ mixer, 3 stereo music ins, pretty LEDS, 7 band graphic EQ
Peavey	Prod Mix 902	Peavey	479	DJ mixer, nine music ins, EQ on mic ins, 7 band graphic
Phonic	BKX 8800	Audio Awareness	199	Rackmount 8/2, 2 band EQ, 2 aux, extra MIDI thru
Phonic	PMC 802A	Audio Awareness	425	8/2, 3 aux, 3 band EQ 1 sweep,
Phonic	PMC 1202A	Audio Awareness	555	12/2 version of PMC802A
Phonic	PMC 1602A	Audio Awareness	675	16/2 version of PMC802A
Phonic	PMC 2402A	Audio Awareness	949	24/2 version of PMC802A
Phonic	PMX 1600A	Audio Awareness	699	16/2 rackmount, 3 aux, 3 band EQ 1 sweep
Phonic	PMR 2200	Audio Awareness	699	6/2 rackmount mixer amp, graphic EQ, digital reverb
Roland	M-160	Audio Awareness	899	16/2 4U rackmount, no EQ, 3 aux
Roland	Boss BX-4	Roland	118	Utterly basic 4/2
Roland	Boss BX-8	Roland	442	8/2, 2 band EQ, 2 aux
Roland	Boss BX-60	Roland	209	6/2, no EQ, 1 aux
Roland	Boss BX-80	Roland	364	8/2, 2 band EQ, 1 aux
Sony	MXP-210	Sony	2,144	8/2, three band EQ, 2 aux
Soundcraft	Spirit Folio 10/2	Soundcraft	368.95	6 mono & 2 stereo in, 3-band EQ, swept mid (monos) 2-band fixed (stereos), 2 aux
Soundcraft	Spirit Folio 12/2	Soundcraft	433.58	12/2 version of Folio 10/2
Soundcraft	Folio 12/2 RM	Soundcraft	433.58	Rackmount version of Folio 12/2
Soundcraft	Spirit Folio Si	Soundcraft	547.84	Stereo input keyboard mixer, console or rack versions, 8 stereo 2 mono ins
Soundcraft	Spirit Folio 4	Soundcraft	1,173.83	20/4/2 live mixer (12 mono, 4 stereo ins) 3-band EQ – swept mid – monos, 2-band fixed on stereos
Soundcraft	Spirit Live	Soundcraft	840.18	8 into 3 PA mixer. 16/3 version @£1,395.37. 24/3 @£2023.35. 3-band EQ, swept mid and low
Soundcraft	Spirit Live 4	Soundcraft	1,343.55	4-bus 12+2/4/2 live desk. 16+4/4/2 version @£1,746.99, 24+4 @£2,284.91, 32+4 @£3,023.92
Soundcraft	Spirit Studio	Soundcraft	2,426.79	16/8/2 multi-track mixer. 24-input version @£3,570.47, 32-input @£4,368.71. 4-band EQ.
Soundcraft	Spirit Auto	Soundcraft	3,630.93	16/8/2 multi-track mixer – VCA automation. 24-input version @£5,312.53, 32-input @£6,415.50
Soundcraft	Spirit Monitor	Soundcraft	2,150.25	16-input, 8-send monitor mixer. 24-input version @£2,716.60, 32-input @£3,266.50
TAC	SF 10/2	Amek	3,280	10/2 balanced stereo, 3 band EQ 1 sweep, 4 aux
TAC	SF 10/4/2	Amek	3,556	10/4/2 version of SF 10/2
Tascam	M-06	Tascam	299	6-2 compact console, mic and line ins, 2 band EQ, 1 aux
Tascam	M-06-ST	Tascam	379	As M-06 with stereo ins
Tascam	MX-80	Tascam	599	8-2 balanced mic/line, rackmount,
Tascam	M-1MkII	Tascam	339	8-2 line level rackmount
Tascam	M-108	Tascam	649	8 mono, 2 stereo ins, 4 groups, 2-band EQ, 2 aux
Tascam	M-1016	Tascam	949	Rackmount, 8 mono, 4 stereo ins, 4 FX sends, 2 aux sends, 3-band EQ, 1 sweep
Tascam	M-1024	Tascam	1,399	16 mono, 4 stereo ins, 4 FX sends, 2 aux sends, 3-band EQ, 1 sweep
Tascam	M-1508	Tascam	899	8/4/2, 3 aux, 3-band EQ, 1 sweep
Tascam	M-1516	Tascam	1,299	16/4/2 version of M-1508
Tascam	M-2516	Tascam	2,099	16/8/2, 3-band 2 sweep EQ, 4 aux, MIDI muting
Tascam	M-2524	Tascam	2,799	24/8/2 version of M-2516
Tascam	MM-1	Tascam	779	Rackmount 20/2, 2-band EQ, 4 aux, MIDI muting
Tascam	MM-200	Tascam	449	Rackmount stereo 8/2, 6 aux, MIDI routing, BBE enhancer built in
Vestax	RMC-88	Vestax	311	Rack mounting 8/2, 3-band EQ, 3 aux
Vestax	RMC-108	Vestax	1,621	Rack mounting10/2/2, 3-band EQ mid sweep, 4 aux
Vestax	RMC-8000	Vestax	689	Rack mounting 8/8/2, 3-band EQ, 2 aux
Vestax	PMC-60	Vestax	2,898	Stereo 6/2 DJ mixer, 4-band EQ, 2 aux
Vestax	PMC-40	Vestax	1,010	Stereo 4/2 + mic DJ mixer, 2-band EQ, 1 aux
Vestax	PMC-41	Vestax	1,010	As PMC-40 with knobs instead of sliders
Vestax	PMC-20SL	Vestax	947	Stereo 3/2 DJ mixer with graphic EQ and built-in sampler
Vestax	PMC-15	Vestax	442	DJ mixer, 6 line, 3 phono, 2 mics, graphic EQ, effect loop
Vestax	PMC-10/2	Vestax	302	DJ mixer, 2 line, 2 phono, 2 mics, graphic EQ
Vestax	PMC-09	Vestax	343	DJ mixer, 2 mics, 5 line, 2 phono, graphic EQ
Vestax	PMC-05/2	Vestax	226	DJ mixer, 2 stereo ins, crossfade, LED meters
Vestax	PMC-05T	Vestax	239	DJ mixer, 2 stereo ins, crossfade, LEDS, wild paint job
Yamaha	AM602	Yamaha	209	6/2, 2 aux
Yamaha	AM802	Yamaha	375	8/2 10 ins, 3 aux
Yamaha	MV802	Yamaha	419	Rackmount 8/2, 2 aux
Yamaha	MV1602	Yamaha	879	Rackmount 16/2, 18 ins, 3-band EQ, 4 aux
Yamaha	MV422	Yamaha	699	Multi-source mixer for PA/Disco
Yamaha	EM1620	Yamaha	559	Rackmount powered 6/2, 200W 4 ohm
Yamaha	EM2820	Yamaha	1,169	Powered 8/2, 200W stereo 4 ohm
Yamaha	EMX2150	Yamaha	1,189	Powered 6/2, 150W stereo, built-in DSP
Yamaha	EMX2200	Yamaha	1,319	Powered 8/2, 250W stereo, built-in DSP
Yamaha	EMX2300	Yamaha	1,539	Powered 12/2, 250W stereo, built-in DSP

AMPLIFIERS AND SPEAKERS

Note: features studio monitors and power amps

MANUFACTURER	MODEL	DISTRIBUTOR	£PRICE	DESCRIPTION
3G	HP200	HW	511	Stereo 100W power amp
3G	HP400	HW	763	Stereo 225W power amp
3G	HP1000	HW	1,245	Stereo 600W power amp
Electrovoice	S-40	Shuttlesound	264	Two-way monitors, 160W
Fostex	6301B	Fostex	180	Small powered monitor
Fostex	6301BX	Fostex	221	6301B with bal/XLR inputs
Fostex	SPA11	Fostex	329	Powered full range speaker (100W)
Fostex	SPA12	Fostex	470	Powered full range speaker (100W, 3 band EQ)
Fostex	SP11	Fostex	196	Unpowered version of SPA11
Fostex	SP11U	Fostex	196	Waterproof version of SPA11
Fostex	SPA32	Fostex	611	Powered full range speaker (250W)
Fostex	SP32	Fostex	282	Unpowered version of SP32
MTR	SPA200	MTR	335	Stereo 100W/ch amp, mono bridging, 1U rackmount
MTR	SPA400	MTR	425	Stereo 200W/ch amp, mono bridging, 2U rackmount
MTR	SPA800B	MTR	593	Stereo 400W/ch amp, mono bridging, 3U rackmount, fan
McGregor	RM500	MTR	535	Stereo 250W/ch amp, limiters, 2U rackmount, fan
McGregor	RM1000	MTR	699	Stereo 500W/ch amp, as RM500
McGregor	RM1600	MTR	820	Stereo 800W/ch amp, as RM500
Morel	MF705	Real Music	1,495	High quality floor standing monitor speakers
Peavey	DPC 750	Peavey	769	Digital 350W/ch MOSFET power amp
Peavey	M2600	Peavey	329	130W/ch amp, built-in compressor, rack mounting
Peavey	M3000	Peavey	369	210W/ch amp, built in compressor, rack mounting

AMPLIFIERS AND SPEAKERS (continued)

MANUFACTURER	MODEL	DISTRIBUTOR	£PRICE	DESCRIPTION
Peavey	CS800	Peavey	615	400W/ch amp, overload protection, rack mount
Peavey	CS1000	Peavey	765	500W/ch amp, overload protection, rack mount
Peavey	CS1200	Peavey	1,079	600W/ch amp, overload protection, rack mount
Peavey	PRM308S	Peavey	242	Time corrected three way monitors, 80W max
Peavey	PRM308SV	Peavey	TBA	As PRM308S with video monitor shielding
Peavey	PRM310S	Peavey	293	Time corrected three way monitors, 150W max
Peavey	PRM312A	Peavey	352	Time corrected three way monitors, 200W max
QSC	Mod1100	HW	704	Pro quality 65W stereo power amp
QSC	Mod1200	HW	744	Pro quality 150W stereo power amp
QSC	Mod1400	HW	988	Pro quality 300W stereo power amp
QSC	Mod1700	HW	1,564	Pro quality 500W stereo power amp
QSC	MX700	HW	704	Budget (?) 225W stereo power amp
QSC	MX1000a	HW	1,067	Budget 350W stereo power amp
QSC	MX1500a	HW	1,298	Budget 500W stereo power amp
QSC	MX2000	HW	1,880	Budget 650W stereo power amp
QSC	EX800	HW	1,145	275W stereo power amp
QSC	EX1250	HW	1,410	400W stereo power amp
QSC	EX1600	HW	1,727	600W stereo power amp
QSC	EX2500	HW	2,291	750W stereo power amp
QSC	EX4000	HW	2,596	1100W stereo power amp
QSC	USA370	HW	601	185W stereo power amp
QSC	USA850	HW	742	425W stereo power amp
QSC	USA1300	HW	1,067	650W stereo power amp
RCF	5S	HW	339	175W monitor speakers
Silver	5L	Silver	454	Nearfield monitors
Silver	BH	Silver	460	Bass augmentors for 5Ls
Tannoy	PBM 6.5	Tannoy	129	Dual driver medite case 100W
Tannoy	PBM8	Tannoy	175	Dual driver medite case 125W
Tannoy	Sys6 NFMII	Tannoy	232	6.5" dual concentric driver, MDF case, 175W
Tannoy	Sys8 NFMII	Tannoy	350	8" dual concentric driver, MDF case, 200W
Tannoy	Sys10 DMTII	Tannoy	538	10" dual concentric driver, MDF case, 350W
Tannoy	Sys12 DMTII	Tannoy	802	12" dual concentric driver, MDF case, 450W
Tannoy	Sys15 DMTII	Tannoy	1,443	15" dual concentric driver, MDF case, 600W
Tannoy	Sys215DMTII	Tannoy	2,686	Dual 15" dual concentric driver, MDF case, 750W
Vestax	VS1P	Vestax	75	Small powered monitors
Vestax	VS2	Vestax	52	Small unpowered monitors
Vestax	VE-A300	Vestax	395	150W/ch rack mount stereo power amp
Vestax	VE-A600	Vestax	595	300W/ch rack mount stereo power amp
Yamaha	PC4002M	Yamaha	2,259	430W/ch rack mount power amp with sexy meters
Yamaha	PC4002	Yamaha	2,039	As PC4002 without metering
Yamaha	P2700	Yamaha	1,059	350W/ch rack mount power amp
Yamaha	P2350	Yamaha	749	175W/ch rack mount power amp
Yamaha	P2160	Yamaha	529	80W/ch rack mount power amp
Yamaha	P2075	Yamaha	399	50W/ch power amp
Yamaha	P4050	Yamaha	599	4 channel power amp
Yamaha	A100	Yamaha	224	50W/ch with VU meters, half rack
Yamaha	NS10M-stud	Yamaha	319	The classic studio near-field monitors
Yamaha	NS10MC	Yamaha	369	As NS10M with grille & mounting capability
Yamaha	S12	Yamaha	99	160W peak 2 way compact monitors
Yamaha	S22	Yamaha	169	320W peak 2 way compact monitors
Yamaha	S60	Yamaha	339	320W peak 2 way compact monitors
Yamaha	S1520S	Yamaha	1,869	Pro-quality AST speaker system
Yamaha	S450S	Yamaha	929	AST speaker system, 640W peak
Yamaha	MS60S	Yamaha	449	2 way 60W powered AST speaker
Yamaha	MS20S	Yamaha	169	2 way 20W powered AST speaker
Yamaha	MS101II	Yamaha	99	Powered monitor speaker 10W
Yamaha	MS202II	Yamaha	169	Powered monitor speaker 20W

RECORDING, DIGITAL

Note: Includes DAT, digital mastering, direct-to-disk and digital multi-track recorders.

MANUF	MODEL	£PRICE	TYPE	FORMAT	TRACKS	DESCRIPTION
Akai	A-DAM DR 1200	6,799	Multi-track	Video 8	12	Meaty digital multi-track with extensive sync capabilities
Akai	DD1000	7,750	Disk recorder	Magneto Optical	4	High quality master recorder and editor offering a lot of storage
Akai	DD1000i	7,999	Disk recorder	Magneto Optical	4	Updated and more flexible version of DD1000
Akai	DD1000s	6,999	Disk recorder	Magneto Optical	4	Slave version of DD1000
Akai	DR4d	1,599	Disk recorder	Hard disk	4	16-bit, 48kHz sample rate, AES/EBU inputs, optional remote controller and SMPTE board
Alesis	ADAT	3,499	Multi-track	S-VHS	8	Ground breaking digital multi-track thanks to expandability, flexible control and low price
Fostex	D-20B	5,346	DAT recorder	DAT	2	Full featured recorder for professional use
Fostex	PD2	7,578	DAT recorder	DAT	2	Fully professional portable DAT with full time code features
Plasmec	ADAS MC	997	Disk recorder	Hard Disk	2	Low cost direct to disk system for Mac computers
Plasmec	ADAS SA	4,106	Disk recorder	Hard Disk	2	Stand alone version of ADAS for those without a computer. Memory expandable to 1Gb
Plasmec	ADAS ST	599	Disk recorder	Hard Disk	2	Low cost direct-to-disk system for Atari computers
Roland	DM-80 4	5,729	Disk recorder	Hard Disk	4	Very controllable system as long as you buy all the extras
Roland	DM-80 8	8,932	Disk recorder	Hard Disk	8	8-track version of 80 4
Sony	TCD-D10 PROII	2,526	DAT recorder	DAT	2	Absolute Time recording, AES/EBU audio interface, high speed search, built-in speaker
Soundscape	SS-HDR1	2,500	Disk recorder	Hard disk	4	48kHz sampling, 24-bit signal processing. Two in, four out, use with IBM-PC 386/486
Tascam	DA-30	1,199	DAT recorder	DAT	2	Rackmounted recorder with balanced inputs for professional applications
Tascam	DA-P20	876	DAT recorder	DAT	2	Portable system based on DA-30
Tascam	DA88	3,999	Multi-track	Hi8 video cassette	8	8-track using hi8 video cassettes
Yamaha	CBX-D5	POA	Disk recorder	Magnetic disk	4	4-track unit for use with Atari and Mac computers running *Cubase*
Yamaha	DMR 8	POA	Multi-track	M20P cassette	8	Very extensive digital control and automation – used for CD mastering
Yamaha	DRU 8	POA	Multi-track	M20P cassette	8	Recorder only version of DMR 8 which links with DMC1000 digital mixing console

SOUND MODULES

Note: This section covers all non-keyboard synth modules, including rackmount units, computer sound modules and workstations.

MANUF	MODEL	SUPPLIER	£PRICE	TYPE	MULTIT	POLYPH	DESCRIPTION
Dream	GMX-1	Zone	249	Tone module	16	20	Good-sounding budget unit. GM-style voice implementation, but not quite GM polyphony
E-mu	Proteus 1	E-mu	629	Rack	16	32	192 presets covering all things poppy and rocky. Loads of control too
E-mu	Proteus 2	E-mu	786	Rack	16	32	Orchestral version, with again 192 presets. XR version has 384 presets for £943
E-mu	Proteus 3	E-mu	629	Rack	16	32	Lots of bagpipe, sitar and nose flute type sounds on this World version. Bigger XR is £786
E-mu	Vintage Keys	E-mu	865	Rack	16	32	All the classic analogue synths in one box. None of the Proteus range have effects
Ensoniq	SQ-R Plus	Sound Tech	849	Rack	16	32	Module version of SQ synths
GEM	WS2 Module	GemWorks	1,099	Tone module	16	16	Programmable voices, styles & effects; 128 registrations, multi-track seq & disk drive
Kawai	GMega	Kawai	649	1/2 rack	32	32	128GM +128 SP banks, 14 drum kits, Mac interface, two MIDI In, Out, two Thru
Kawai	K4r	Kawai	299	Rack	8	16	Module version of K4 synth
Kawai	PHM	Kawai	289	1/2 rack	4+drum	16	200 tone patches, 30 rhythms, 30 combination setups, tune, transpose
Kawai	XS-1	Kawai	249	1/2 rack	4+drum	10+4	128 16-bit PCM waves, 64 preset patches, 32 user, basic editing
Korg	05R/W	Korg	599	1/2 rack	16	32	100 RAM, 128 ROM programs, effects, Mac/PC/NEC PC-98 interface
Korg	Audio Gallery 101/2	Korg	399	Module	16	32	PC or Mac versions, GM with effects, cpmes with Trax or TurboTrax
Korg	M1 REX	Korg	1,634	Rack	8	16	M1 rackmounted plus additional sound memory

SOUND MODULES (continued)

MANUF	MODEL	SUPPLIER	£PRICE	TYPE	MULTIT	POLYPH	DESCRIPTION
Korg	03R/W	Korg	899	Rack	16	32	MIDI module as for 01/W but without sequencer
Korg	Wavestation A/D	Korg	1,521	Rack	16	32	Rackmount version of Wavestation with extra polyphony, memory and audio inputs
Korg	Wavestation SR	Korg	980	Rack	16	32	Wavestation sounds in an affordable rack
Kurzweil	K2000R	Kurzweil	2,769	Rack	16	24	Module version of K2000 with SCSI and 10 inputs/outputs
Oberheim	Matrix 1000	Oberheim	499	Rack	-	6	Fat sounds and easy to handle edit matrix but no multi-timbral mode
Peavey	DPM-V2	Peavey	675	Rack	16	16	Module version of DPM 2
Peavey	DPM-V3	Peavey	839	Rack	16	16	Module version of DPM 3
Peavey	Spectrum Bass	Peavey	279	Rack	4	8	200+ specialised bass sounds. Access via MIDI or front panel controls
Peavey	Spectrum Bass	Peavey	279	Rack	4	8	100 bass presets, 1Mb of bass samples, Legato for extra expression
Peavey	V2	Peavey	675	Rack	16	16	300 internal programs, +200 using slot-in card, drums, effects
Peavey	V3	Peavey	839	Rack	16	16	4Mb wave ROM, 200 Programs, 10 drum kits, 32 oscillators, 6 audio outputs
Roland	GR-1	Roland	1,129	Tone module	5	24	Impressive – requires GK-2 synth driver (£135)
Roland	JV-880	Roland	840	Rack	7	28	Expanded module version of JV80
Roland	JV-990 Super JD	Roland	1,599	Tone module	16	24	JD-800 synth power with new programming abilities, large expandable sound palette
Roland	SC-33	Roland	799	Tone module	16	24	220 sounds from Sound Canvas family, supports GM/GS format for song data
Roland	SC-55 Mk II	Roland	649	Rack	16	28	Upgraded SC-55 sounds – 354 of them. PC and Mac interfaces
Roland	SC-7 Roland	Roland	314	Desktop module	16	24	Designed for use with PC or Apple computers, comprehensive processing capabilities
Roland	SC-155 Sound Canvas	Roland	727	Tone module	16	24	New version of SC-55 with more buttons and sliders for greater control
Roland	MT-120	Roland	795	File player	16	24	Standard MIDI-file player with disc drive, sequencer, extra stereo inputs
Soltan	MS3	Bluebridge	799	Tone module	9	35	Expander for MS5 synth – as MS4 but without keyboard split and combine facilities
Soltan	MS4	Bluebridge	1,749	Tone module	9	35	Expander for MS5 synth – adds new sounds and processing capabilities
Yamaha	TG100	Yamaha	349	Tone module	16	28	Budget sound source with PC/MAC interface and general MIDI spec
Yamaha	TG500	Yamaha	999	Rack	16	64	100s of sounds and massive polyphony

PERCUSSION, ELECTRONIC

Note: Includes drum machines and percussion modules.

MANUF	MODEL	SUPPLIER	£PRICE	TYPE	SOUNDS	DESCRIPTION
Akai	MPC6011	Akai	1,899	Sampling drum machine	32	A combined sampler, drum machine and sequencer from the Akai-Linn collaboration
Akai	XR10	Akai	349	Drum machine	65	Fairly recent machine with 450 pre-set patterns
Alesis	D4	Sound Tech	399	Module	500	A module with 12 trigger inputs for the 48kHz sampled sounds
Alesis	SR-16	Sound Tech	299	Drum machine	233	Superb samples, but they're all drum sounds
Boss	DR-550 Mk2	Roland	275	Drum machine	96	Update to the successful DR-550 with new sounds and styling
Boss	DR-660	Roland	399	Drum machine	255	Great sounds with expressive if fiddly editing
E-mu	Pro-cussion	E-mu	629	Module	220	Basic sounds combined into another 556 complex sounds plus performance algorithms
Kat	dk10	Zildjian	549	Percussion controller	–	10 pads. Programmable user set-ups
Kawai	GB-1	Kawai	139	Drum machine	22	12 percussion pads, 48 built-in patterns, song record function, no MIDI
Kawai	GB-2	Kawai	269	Drum machine	119	55 rhythm patterns, 10-song memory, RAM/ROM card slot, o/drive facility for guitarists
Korg	S3	Korg	899	Drum machine	160	All the rhythm functions you'd expect along with an advanced sound creation section
Roland	CR-80	Roland	585	Rhythm player	69	A pre-set rhythm machine utilising Roland's 'feel' algorithms
Roland	R-8 Mk2	Roland	919	Rhythm composer	77	Preset rhythm machine with 'feel' algorithms plus over 200 sounds and large memory
Roland	R-70	Roland	679	Drum machine	242	Many of the sounds of the Boss DR-660 but also has superb editing options
Roland	SPD-11	Roland	599	Percussion pad	255	Built-in effects
Roland	TDB-7	Roland	1,199	Drum kit	512	TD-7 sound module, 4 PD-7 pads, KD-7 kick controller
Roland	TDE-7	Roland	729	Drum kit	512	4 PD-7 pads, FD-7 hi-hat controller, 2 cymbal pad holders, 2 pad holders
Yamaha	QR10	Yamaha	279	Accomp. programmer	129	Programmable accompaniment patterns, 129 voices
Yamaha	RM50	Yamaha	649	Module	1,100	500 pre-sets, 500 part-editable sounds and 100 externally definable ones
Yamaha	RY10	Yamaha	249	Drum machine	250	Good sounds, bass samples and built-in speaker make this a useful portable tool
Yamaha	RY30	Yamaha	480	Rhythm programmer	174	Quality sounds sampled at 48kHz replayed at 22-bit definition, plus 100 useful pre-sets
Yamaha	TMX	Yamaha	399	Rhythm programmer	245	12-input trigger-to-MIDI interface. 16-note polyphonic, 32 performance memories

RECORDERS, MULTI-TRACK

Note: Includes analogue cassette and reel-to-reel systems.

MANUF	MODEL	£PRICE	FORMAT	TRACKS	DESCRIPTION
Fostex	280	658	Cassette	4	8-channel mixer, auto punch in/out and the ability to use MTC sync controller
Fostex	G16S	4,298	Half-inch reel	16	High end 16-track with options for built-in sync
Fostex	GT10	999	Cassette	5	Two speeds, Dolby S noise reduction, 5th track is Cue track, i/face can link with sequencers and MIDI devices

Contacts

Acoustic Sound Systems 1 The Cordwainers, Temple Farm Ind Estate, Sutton Rd, Southend on Sea, Essex SS2 5RU **Tel** 0702 613321

Akai Haslemere Heathrow Estate, Silver Jubilee Way, Parkway, Hounslow, Middx TW4 6NQ **Tel** 081 897 6388

AKG Acoustics Vienna Court, Lammas Rd,Godalming, Surrey GU7 1JG **Tel** 0483 425702

Amek New Islington Mill, Regent Trading Estate, Oldfield Rd, Salford M5 4SX **Tel** 061 834 6747

AMG Box 67, Farnham, Surrey GU9 8YR **Tel** 0252 717333

Amp Sound 419-421 Hertford Road, Enfield Highway, Enfield, Middlesex EN3 5BT **Tel** 081 364 7889

Amptech Unit 4T, Askern Ind Estate, Moss Rd, Askern, Doncaster DN6 0DD **Tel** 0302 702512

Arbiter Pro MIDI Wilberforce Rd, London NW9 6AX **Tel** 081 202 1199

Atlantic Audio 2 Manor Gardens, London N7 6JY **Tel** 071 272 8944

Audio Awareness Eurotec House, 31-35 High Rd, Chadwell Heath, Essex RM6 6QW **Tel** 081 598 8081

Audio Digital Technology 178 High St, Teddington, Middx TW11 8HU **Tel** 081 977 4546

Audio-Technica Unit 2, Royal London Ind Estate, Beeston, LEEDS LS11 8AG **Tel** 0532 771441

Audix Corporation 19439 SW 90th Court Tualatin, Oregon 97062 USA **Tel** 0101 503 692 4426

Bit by Bit 37 Roman Wharf, Carholme Rd, Lincoln LN1 1SN **Tel** 0522 533461

Blue Ribbon SoundWorks 1605 Chantilly Drive NE, Suite 200, Atlanta, USA **Tel** 0101 404 315 0212

Bluebridge 3-5 Fourth Ave, Halstead, Essex CO9 2SY **Tel** 0787 475 325

BSS Audio Unit 5, Merlin Centre, Acrewood Way, St Albans, Herts AL4 0JY **Tel** 0727 45242

Carlsbro Electronics Cross Drive, Kirkby in Ashfield, Notts NG17 7LD **Tel** 0623 753902

Casio Unit 6, 1000 North Circular Road, London NW2 7JD **Tel** 081 450 9131

Citronic Bowerhill, Melksham, Wilts SN12 6UB **Tel** 0225 705600

Composers Desktop Project (CDP) 11 Kilburn Road, York YO1 4DF **Tel** 0904 623696

Composit Software 10 Leasowe Green, Lightmoor, Telford, Shropshire TF4 3BR **Tel** 0952 595436

Computer Music Systems 17 Waterside Business Centre, Isleworth, Middx TW7 7BY **Tel** 081 758 0311

Creative Sounds PO Box 877, Bristol, Avon BS99 5LA **Tel** 0272 244395

Datamusic 57 Cricketfield Rd, Hackney, London E5 8NR **Tel** 081 985 5268

DDA Unit 1 Inwood Business Park, Whitton Rd, Hounslow, Middx TW3 2EB **Tel** 081 570 7161

Desert Software Box 123, St Helens, Merseyside WA9 5LD **Tel** 051 430 7400

Digital Music 27 Leven Close, Chandlers Ford, Hants SO5 3SH **Tel** 0703 252131

E-mu Suite 6, Adam Ferguson House, Eskmills Industrial Park, Musselburgh, EH21 7PQ **Tel** 031 653 6556

EMR 14 Mount Close, Wickford, Essex SS11 8HG **Tel** 0702 335747

Evenlode Soundworks The Studio, Church Street, Stonesfield, Oxford OX7 2PS **Tel** 0993 898484

Farfisa UK Fraser St, Burnley, Lancs BB10 1XJ **Tel** 0282 35431

Fostex Jackson Way, Great Western Ind Park, Southall, Middlesex UB2 4SA **Tel** 081 893 5111

Four Minute Warning 298 Horbury Road, Wakefield, West Yorkshire WF2 8QX **Tel** 0924 386527

Fractal Music Ltd PO Box 1938, Hornsey, London N8 7DZ **Tel** 081 340 1871

Gajits Music Software 40 Princess Street, Manchester M1 6DE **Tel** 061 236 2515

GemWorkS Europe 46 Hampton Close, Herne Bay, Kent CT6 8BZ **Tel** 0227 742790

GFA PO Box 121, Wokingham, Berks RG11 5XT **Tel** 0734 794941

H/H Electronics Ltd Newlyn Road, Cradley Heath, West Midlands B64 6BE **Tel** 0384 69956

Hammond UK Potash House, Drayton Parslow, Bucks MK17 0JE **Tel** 0296 720787

Harman Audio Mill Street, Slough, Berks SL2 5DD **Tel** 081 207 5050

Heavenly Music 39 Garden Road, Jaywick Village, Clacton, Essex CO15 2RT **Tel** 0255 434217

HHB Communications 73-75 Scrubs Lane, London NW10 6QU **Tel** 081 960 2144

Hollis Research **Tel** 0703 891797

HW International 3-5 Eden Grove, London N7 8EQ **Tel** 081 808 2222

Hybrid Arts Inc 8522 National Boulevard, Culver City, CA 90232, USA **Tel** 0101 213 841 0340

Impac Resources Ltd Thornton Ind Est, Pickering, North Yorkshire YO18 7JB **Tel** 0751 77456

Intrinsic Technology 4 Auckland Court, London SE27 9PE **Tel** 081 761 0178

John Hornby Skewes Salem House, Parkinson Approach, Garforth, Leeds LS25 2HR **Tel** 0532 865381

KAT 300 Burnett Rd, Chicopee, MA 01020 USA **Tel** 0101 413 5947466

Kawai Sun Alliance House, 8-10 Dean Park Crescent, Bournemouth, Dorset BH1 1HL **Tel** 0202 296629

Key Audio Systems Unit D, Robjohn's Rd, Chelmsford, Essex CM1 3AG **Tel** 0245 344001

RECORDERS, MULTI-TRACK (continued)

MANUF	MODEL	£PRICE	FORMAT	TRACKS	DESCRIPTION
Fostex	R8	1,551	Half-inch reel	8	High quality 8-track with full automation capabilities
Fostex	X-28H	419	Cassette	4	Two speeds, 8-channel mixer section, Dolby B
Fostex	X18	289	Cassette	4	2-track simultaneous beginner's system with added bonus of MIDI sync
Fostex	X28	369	Cassette	4	Impressive-looking 4-track with auto-rehearsing and eight-channel mixer
Fostex	G24S	6,999	One-inch reel	24	Features Dolby S noise reduction and optional sync
Marantz	PMD740	799	Cassette	4	dbx and Dolby HX Pro noise reduction 6 input channels 3-band EQ (chan 1-4)
Sansui	WS-X1	1,299	Twin cassette	6	8-channel mixer, six-track cassette and second final mastering cassette, Dolby B and C noise reduction
Sony	TC-D5 PROII	816	Cassette	2	Portable, two XLR mic inputs, built-in speaker, Dolby B, two VU meters
Tascam	134	1,190	Cassette	4	Rackmount 4-track machine, specifically for AV presentation. Runs at normal and double speed
Tascam	238 Syncaset	1,299	Cassette	8	A breakthrough in technology when it was released and still a good machine
Tascam	238S Syncaset	1,499	Cassette	8	As above with Dolby S noise reduction
Tascam	424	499	Cassette	4	Excellent beginner's 4-track with loads of features for price
Tascam	464	699	Cassette	4	A 6-track mixer with 4-track combined which can manage up to 12 inputs
Tascam	488	1,299	Cassette	8	8-track recording within more people's reach with all the Tascam features
Tascam	644	1,099	Cassette	4	A full function mixer and MIDI-controlled tape recorder
Tascam	688	2,399	Cassette	8	All the features of the 644 with even more control for 8-track recording
Tascam	MSR-16	4,299	Half-inch reel	16	One of Tascam's more professional recorders with plenty of auto-record functions
Tascam	MSR-16S	5,999	Half-inch reel	16	As above with Dolby S noise reduction replacing dbx
Tascam	MSR-24	6,999	One inch reel	24	24-track version of above
Tascam	MSR-24S	9,699	One inch reel	24	As above with Dolby S replacing dbx
Tascam	Porta 07	345	Cassette	4	Latest budget machine from Tascam offering good features and results for the price
Tascam	Porta07	345	Cassette	4	dbx noise reduction, effects send and return
Tascam	TSR-8	2,399	Half-inch reel	8	High quality, flexible 8-track reel-to-reel
Vestax	GS-M601	147	Cassette	2	Built-in distortion/overdrive and echo, effect send/return, line output for mixing to external cassette deck
Vestax	MR-300	295	Cassette	4	dbx noise reduction, two speeds, tabletop
Vestax	MR-44	519	Cassette	4	dbx noise reduction, two speeds, MIDI sync in/out, rackmount
Vestax	MR-66	1181	Cassette	6	dbx noise reduction, two speeds, 34-input patchbay, MIDI sync in/out, rackmount
Yamaha	MT120	399	Cassette	4	Has rather unusual graphic equaliser instead of EQ and can be operated via RCM remote unit (£33)
Yamaha	MT3X	599	Cassette	4	Features dbx noise reduction, auto punch in/out and MIDI sync
Yamaha	MT8X	N/A	Cassette	8	Mxer section has 3-band EQ on four channels, two aux sends, dbx noise reduction, high tape speed

SAMPLERS

Note: This section covers keyboard sampling systems as well as rackmount samplers.

MANUF	MODEL	SUPPLIER	£PRICE	TYPE	STANDARD MEMORY	DESCRIPTION
Akai	CD3000	Akai	2,399	Rack	2Mb	Plays CD-ROMs. 32-note polyphony, max no of samples 255. Expandable to 16Mb
Akai	S01	Akai	799	Rack	1Mb	16-bit, eight-voice low-cost machine
Akai	S-950	Akai	1,199	Rack	750k	12-bit version of discontinued S900
Akai	S1100EX	Akai	1,799	Rack	2Mb	16-voice expander to run alongside a standard S1100 for 32-voice operation
Akai	S2800	Akai	2,199	Rack	2Mb	16-bit, 32-voice stereo with digital effects and two independent outputs
Akai	S3000	Akai	2,999	Rack	2Mb	16-bit, 32-voice stereo with digital effects and eight independent outputs
Akai	S1100	Akai	3,299	Rack	2Mb	Features 24-bit processing and full time-stretch facility
Akai	S2800	Akai	2,199	Rack	2Mb	16-bit, 32-voice stereo with digital effects and two independent outputs
Akai	S3000	Akai	2,999	Rack	2Mb	16-bit, 32-voice stereo with digital effects and eight independent outputs
Akai	S3200	Akai	3,999	Rack	8Mb	32-voice, 8 audio outs, digital effects, SCSI, SMPTE, HD recording. Expandable to 32Mb RAM
E-mu	Emax 2	E-mu	1,810	Kbd/Rack	2Mb	Favourite in the USA, but features some rather over-complex editing functions
E-mu	E3xp	E-mu	2,750	Rack	8Mb	Sample playback version of E3
E-mu	Emax 2 – Turbo	E-mu	3,449	Kbd/Rack	8Mb	Features built-in 40Mb hard drive
E-mu	E3sp Turbo	E-mu	4,129	Rack	32Mb	Advanced playback module with more memory and on-board 105Mb hard drive
E-mu	E3	E-mu	8,748	Keyboard	8Mb	Extremely powerful sampler
Ensoniq	ASR-10	Sound Tech	2,345	Keyboard	2Mb	Stereo in-out and time compression. 19-inch rackmount version also available
Ensoniq	ASR-10R	Sound Tech	2,345	Rack	2Mb	Complicated to use but a superbly powerful sampling and digital effects unit
Peavey	DPM SP	Peavey	899	Rack	2Mb	Good sample playback unit with very useful functions. Uses SPM SX (£325) to record samples
Roland	DJ-70	Roland	1,839	Keyboard	2Mb	Performance-orientated workstation with DJ-style scratch dial
Roland	S-750	Roland	3,500	Rack	2Mb	Good sounds with most advanced filtering available on any sampler
Roland	SP-700	Roland	2,220	Rack	2Mb	Playback unit based on S-750
Roland	S-760	Roland	1,799	Rack	2Mb	16-bit, 2Mb expandable to 32Mb, similar sound quality and features as S-750

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Korg SQD8 MIDI sequencer, 8 tracks hardly used, 19 disks, manual £70 cheapest price around. Phone Adam 0207 542794 after 5pm.
Roland MC50 sequencer £365. Alesis Datadisc SQ and sequencer £200, Function Junction MIDI patch bay £200, 64 MIDI presets. Tel Andy on 0332 841163.
Systemizer MIDI performance effects unit by Oberheim as new boxed £130 Tel 0325 286618.
Yamaha QY10 8 track digital sequencer/sound module/rhythm programmer. Full MIDI spec. Multi timbral. boxed manual PSU, excellent condition. Tel 081 645 0933 £135 ono.
Yamaha QY10 music sequencer with mains adaptor little used as new £160 ono. Tel 0483 302418 Surrey area.

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Akai XR10 PSU but no manual hence £120. Yamaha MT100 4 track manaul PSU ex con bargain £150. Yamaha QY10 sequencer wave station PSU Manual bargain £120, Roland MC-50 sequencer, 128 tracks, manual £320. Tel 0256 24020.
Alesis SR16 drum machine, 233 sounds, one year old, VGC £150. Contact Luke on 0482 890974 Hull.
Roland R8M drum module £265, Roland R8M sounds cards jazz brush £25 each, contemporary percussion £25 each. Tel Andy 0332 841163 Jazz.
Roland TB-303 immaculate condition with carrying case and manual £350. Kenton Pro-2 dual MIDI to CV converter unused with manual £180. Phone Rich on 0272 492989.
Roland TB303 bassline, TR606 drum machine both with cases, no manuals, hence £450 ono, the pair. Phone Richard 081 981 0229 after 6pm. No time wasters or rear-gunners. Thank you.
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Yamaha RX11 top of range cost £599, new best offer around £150. Tel 0226 287733 Barnsley, Yorks.

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Midiman MM401 PC MIDI card simple MPU401 compat. Fits any PC £45 ono. Phone Mike on 081 559 1336.
Roland SCC-1 card. Brand new PC sound card, boxed with manual, disks, leads, bought in error £305 (P & P included). Call Rob 0392 219273.
Steinberg Cubase 3.0, dongle, manuals etc £220, AKG D80 microphone £20, Accessit noise gate, exciter and PSU £50, Korg 512K RAM card for 01/W £75. Tel Kate 0603 666701.
Tilt and swivel Hi Res monitor for Atari computers, boxed and still under guarantee. Mint condition £100. Ring Sean on 0992 589278 (evenings).
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Notator v2.2 £100 MI Synthworks Editor £70 and Replay 8 sampling package £30 all for Atari ST. complete with manuals and dongles Tel: Ian 091 4563772 (home) 091 4173525 (day).
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Alesis Quadraverb multi effects £195, Digitech RDS 100 sample and hold digital delay £150, 12 channel mixing desk flight cased £120 for quick sale buyer collects. Tel: Mark 0642 467522
Bargain Tascam Porta 05 4 track. Mint, boxed with manual £200. Tel: 0793 695929.
Boss BX- 16 16:2 mixer. 2 aux sends 2 band EQ mic/line trim very quiet. Boxed manuals mint. £480 call Mr Hunte 0483 236148
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Fostex MTC-1 sync unit preferably from south/south east region. Will travel to collect Tel: John 0634 843272.
Hard disk for Atari MEGA 4 any size 10mb or more, Can collect within reason. Call Pete 0225 868023.
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Peavey ES-15 cabinet (15" woofer and horn). Just one please! Call David on 0483 476524.
Roland E-70 wanted cash waiting, call Mehmet on 071 635 9881 or 0850 852876.
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Personnel

Anyone into hip hop in the Hull area please get in touch. Rappers, musicians, whatever, to start group. Into De la Soul, Massive Attack, digable planets and Jazz. Contact Luke on 0482 890974.
Bands musicians do you need somewhere to rehearse (North Manchester area) Phone Tel 061 633 3981.
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Misc

Anyone want to swap their Boss 660, Yamaha RY30 or TR909 for a Boss Dr Synth? Phone and ask for Keith on 0256 478684.
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Emax 1, Akai S900 sample disks, £3.50 each. John 0476 64626 – lists or Sue, 5 The Drift, Harlaxton, Grantham, Lincs, NG32 1AE, Rabbit, Crawler, free, archive tape list, sale Rabbit Dream Jungle CD, cassette.
I have 110 E180's with episodes of Miami Vice, Moonlighting, Cosby etc. I will swap 50 for good condition, preferably boxed MonoPoly/Sequential Pro One. You must collect. Tel Richard on Weymouth 0305 782554.
Mackie Mixer 12-2 boxed as seen in last month Future Music £270. Tel 0705 877932.
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Omniphonics S50 top quality studio amp £150 AKG C410 headset mic £110 (brand new) 3 unit 19" rackmount flightcase £60. Tel Brad 0633 865758.
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Roland TB303 bassline, manual, shift disc, little used, good condition £390, wanted studio condenser microphone up to £300. Tel Hamish on 036 284 804 (Norfolk).
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Watkins Cop-I-Cat tape echo machine, all original (except IEE Earth) sold state version £75, also Vox Escort, Practice Combo (mains/batteries) £35 ono. Tel 0772 452036 (North-West).
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Ibanez Series II electric guitar, immaculate condition with case £200. Tel 0205 363266 Now! Tim.
Roland SC55 plus RAD50 rack mount 4 months old £395, Yamaha TG100 plus rack mount shelf £275. Tel 0493 750015.
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Crosstalk

Richard Wentk ponders the demise of music as we know it – or not.

IT'S EASY TO GET DISCOURAGED in this business. Maybe you know your music is brilliant and every one you've ever played it to agrees, but you've sent your demos in to all the majors and heard zilch back; maybe you turn on Radio 1 every morning and immediately start thinking 'God, I could do better than that!'; or maybe you've simply given up, frustrated because the gear you need to realise your ideas fully is way out of the range of your wallet, and your best friend – the one who swore that music would always be his life – has just packed it all in and become a chartered accountant.

Take what?

It doesn't take much to see that the music business in this country isn't in a healthy state at the moment. Everyone has heard stories of 'manufactured' acts – people with the latest 'made-to-appeal' style who look the business on videos and photo-shoots, but don't even sing on their own records; of bands who are signed up and then left on the shelf with no support while the record company makes a healthy tax loss; of A&R people out to make a fast buck who sign a flavour-of-the-moment act, pay for the release of a single or two and then drop them as soon as the profits stop flooding in.

The fact is that all record companies – even the smallest indie labels – are in the business to make money. Some, in fact most, of the indie labels really do care about the music they put out, but they're constrained by tight financial pressures and can't always support acts in the way they'd like. And the majors? There's at least one story doing the rounds (which may or may not be true, of course) of how the manager of one company's A&R department walked into the office one day, named a certain act on the company's books and said 'If this act goes down in the listings everyone here will be out of a job.'

Under this kind of pressure it's understandable if A&R people aren't inclined to take big risks with new, untried talent. Worse still, many majors are now owned by the companies that make CD players and other music hardware. Music isn't music any more, it's become – officially – 'software', to go with music-playback 'hardware'. Music and music makers have become advertising and packaging for the major's main product – bits of plastic with holes in the middle.

> *"Without that enthusiasm and energy, much of today's rave music would never have been possible"*

So yes, it's all too easy to despair. But, on the other hand...

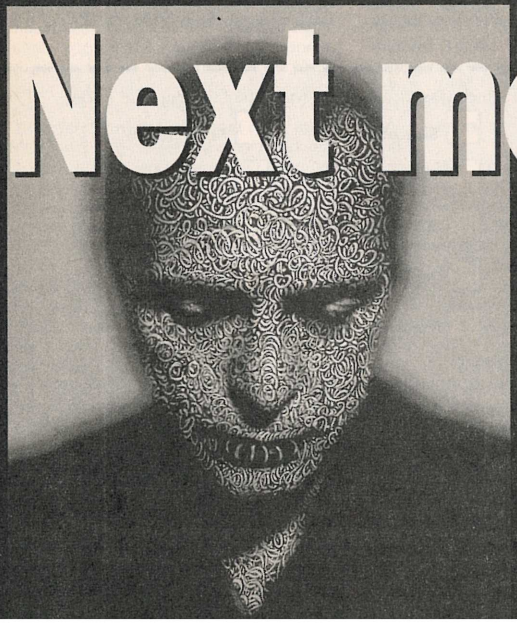
As a music maker, you can either despair or you can do something about it. In the past, *FM* has run features on setting up and promoting your own record label. If your music is even slightly away from the mainstream – and these days that probably includes most of the new music that's around – you'd perhaps be a lot better off taking matters into your own hands instead of chasing that elusive major deal. No matter what kind of music you're making, it's a fact that gigging everywhere you can, promoting yourself, selling yourself, duplicating your own tapes, 12-inch singles and even CDs, is often a much healthier and more creative way of spending time than jumping right into all the intrigue and sliminess of the big-time music business. If your music really is any good you'll have no trouble finding a paying audience and after a while the whole business becomes – surprisingly perhaps – completely self supporting. Of course, this kind of operation takes dedication, hard work and persistence. It may be a harsh and provocative thought, but if you don't think your music is worth it then why should anyone else?

Make it happen

Back in the 60s there was a huge explosion of creative and exciting music and many of today's majors started up around this time on a combination of promises, prayers, shoestring budgets and masses of enthusiasm. People did what they did because they believed it was possible and they cared enough about music to make it happen. Without that enthusiasm and energy many of today's rave, dance and ambient music would never have been possible.

You can look at the situation today in a similar way. It's tragic but true that the majors and the big FM radio stations have a stranglehold on the mass market. It's possibly harder than it's ever been to break into the big time with interesting, exciting and different music, but at the same time the people who want to hear that kind of music – and there are plenty of them – are being left dissatisfied. They're out there waiting. Perhaps for you.

The bottom line? If you want something done properly, why not do it yourself? FM



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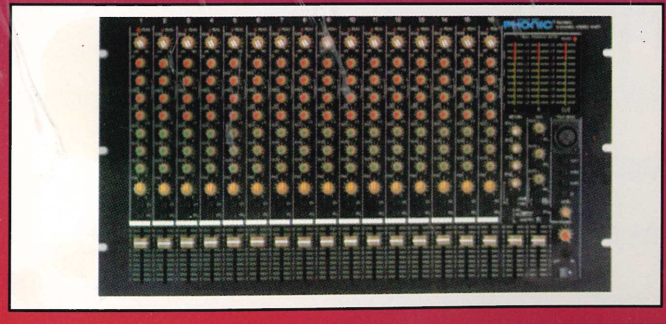

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